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FUNDING OF ALZHEIMER'S DISEASE RESEARCH AND RESPITE CARE

HEARING

BEFORE THE

SUBCOMMITTEE ON AGING

OF THE

COMMITTEE ON
LABOR AND HUMAN RESOURCES
UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

SECOND SESSION

ON

REVIEWING FEDERAL RESEARCH ACTIVITIES RELATED TO ALZHEIMER'S DISEASE AND FUNDING SOURCES

OCTOBER 2, 1984

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FUNDING OF ALZHEIMER'S DISEASE RESEARCH AND RESPITE CARE

TUESDAY, OCTOBER 2, 1984

U.S. Senate,
Subcommittee on Aging,
Committee on Labor and Human Resources,
Washington, DC.

The subcommittee met at 9:30 a.m., in room SD-430, Dirksen Senate Office Building, Senator Charles E. Grassley (chairman of the subcommittee) presiding.

Present: Senators Grassley and Metzenbaum.

OPENING STATEMENT OF SENATOR GRASSLEY

Senator **Grassley**. Good morning, everybody. I thank our panelists, as well as people from the public who are here.

I want to say that I am Chuck Grassley. I am chairman of this Subcommittee on Aging of the Senate Committee on Labor and Human Resources. I am pleased to welcome you all here to the second hearing on Alzheimer's disease held by this subcommittee.

Our first hearing, held in May 1983, examined the progress made in the treatment of Alzheimer's disease and focused on federally funded research into the causes, diagnosis, and treatment of that disease. At that hearing, we learned a good deal about the scientific progress in the understanding of the disease and also about the problems faced by people, usually families who must care for those with Alzheimer's disease.

The Federal interest in Alzheimer's disease has increased since our hearing last year. Let me say parenthetically, very dramatically, the Congress approved funding last summer for a number of research centers, which are to specialize on Alzheimer's disease.

The Older Americans Act, which has been passed by both Houses of the Congress and awaits the President's signature, was changed by our subcommittee to emphasize social support for victims of Alzheimer's disease and their families as a preferred service under title III, to give greater emphasis to training people who will provide support services to Alzheimer's disease victims and their families, and to give greater emphasis to demonstration projects under title IV, the results of which will help us better understand how to provide for care of Alzheimer's victims and their families.

Let me say parenthetically that Senator Metzenbaum, on my left, played a very active role in that provision in the Older Americans Act.

Just last month, the Secretary's Task Force on Alzheimer's Disease, which was created by Secretary Heckler early last year and about which the Secretary told us at our hearing last May, issued a report, and this is what the report looks like. So if you look for it you will know what it is.

It comprehensively described the really impressive volume and diversity of research conducted by the Department and the Veterans' Administration into the many questions which must be resolved if we are to better understand and eventually successfully treat and perhaps eliminate the disease.

The subcommittee is interested both in the organization and coordination of our Federal scientific effort in this area and in the organization and coordination of our effort to provide social support for those who are caring for Alzheimer's victims. Clearly, scientific advances hold out the promise of eventual diagnosis and definitive treatment of the disease, and therefore deserve our strongest support.

At the same time, however, there are thousands of families out there which are at their wits' end trying to cope with the problems presented by a family member with Alzheimer's, and we must be sure that such Federal activity as we have underway, which is designed to help such people, is effectively and efficiently conducted.

Thus, we want to get answers to a number of general questions and, hence, this hearing.

Do the suggestions for future research, education, and training made by the Secretary's task force constitute priorities which will be followed by the various research supporting agencies of the National Institutes and the Veterans' Administration?

If so, when will these priorities be translated into commitment for financial support by the agencies for scientific projects?

How is the coordination of this diverse Federal effort being achieved?

Will the Secretary's task force remain in place and oversee the Alzheimer's efforts, or is commitment to the priorities identified by the task force by the agencies the way in which the effort will be coordinated?

What efforts are being made by the Department to coordinate research and social service activities in this area with independently sponsored and conducted private sector activities?

What efforts are being made by the Department to coordinate research activities with international bodies, such as the World Health Organization?

These do not exhaust the questions which will be raised today, but serve to give an indication of the direction of the subcommittee's interest.

Without further ado, I would like to turn to Senator Metzenbaum for his opening statement, and then to Senator D'Amato. Senator D'Amato is going to join us on the panel here after his testimony.

Would you proceed, Senator Metzenbaum?

Senator Metzenbaum. Thank you.

I think it is an interesting phenomenon in development that Alzheimer's disease has so rapidly been catipulted into prominence in the whole field of American medical diagnosis. I think it is fair to say that not too many years ago if you had said "Alzheimer's" to the American people, they would have had very little idea what you were talking about, and I am frank to admit that I think that would have included an overwhelming majority of the Members of Congress.

Now we look at Alzheimer's as a real challenge to the whole question of dealing with our senior citizens, but it has an underlying factor also, that is, its impact upon future costs of medical care in this country, which could just become beyond anyone's present comprehension, when you stop to think of the number of potential cases of Alzheimer's as the American life expectancy increases.

Two and one-half million Americans have been stricken with Alzheimer's, and 120,000 die each year from that illness. The fact that it is now the fourth leading cause of death in the United States is astounding because it is fair to say that out of the 230 million Americans living in this country, my guess is that probably 75 percent of them have never even heard the word Alzheimer's, unless it has been close to their family.

We are now spending $20 to $30 billion a year on care. We have not done as much in the area of research. There is no known cause, and there is no known cure. But the fact that the number of senior citizens, persons over age 65 will increase 37 percent by the year 2000, and 130 percent by the year 2025 is reason enough for our Government and our medical researchers to place prime emphasis on the cause and cure for Alzheimer's.

Frankly, it threatens to become the most serious health problem of the next century. Alzheimer's devastates not only the individual, but it is devastating to the family. I fortunately have not been faced with the problem of Alzheimer's in my family, but I know of friends and others where the family has just been overwhelmed by the challenge, and in some cases, it is fair to say that death would be a more pleasant, more reasonable relief because there is no real living pleasure for the individuals involved, and yet we know that in our society that is not the answer. So that is all the more reason that we must take up the challenge.

Last year, Labor-HHS appropriations bill I authored and was able successfully to provide $3.5 million for five research centers on Alzheimer's. I am not one who will claim that that will provide the breakthrough, but it is a step in the right direction, and with people such as Senator Grassley on the other side, and Senator D'Amato, Senator Pressler, and others who have indicated their interest, I know that we will continue to make headway in this area.

The fact that the five centers which were authorized last year have now been announced or are about to be announced pleases me because we are moving. Harvard, Mount Sinai of New York, Johns Hopkins, University of California at San Diego, and the University of Southern California, I am informed, are to be the designated research centers.

Selfishly, I am frank to admit that each of us in the Congress of the United States has the attitude, well, we get these funds, and we want to see that the moneys are used in our own area. I would have liked that to happen as far as my State is concerned, but I think that the overall good is far more important than the question of whether one or more of them are located in the State of Ohio, and although I greet that fact with a sense of disappointment, I also applaud the choice of the five designated centers as being much more important as far as the research is concerned than is the fact of whether or not one is located in my State.

Then we had my amendment to the Older Americans Act, to provide $5 million to establish demonstration projects, not alone just to take care of the research, but to assist families caring for an Alzheimer's disease patient, and I think that that is also part of the problem that we have, and that is not alone the victims, but what do we do with respect to the families.

Now, the current Labor-HHS funding for NIH research has $50 million in it, including an additional $5 million for an additional five research centers. I think that we are moving in the right direction, and I think that with all of us pushing and pulling together, we are talking about a nickel, a dime in the overall aspect of our budgetary considerations, but spending our dollars now on research can be the cheapest dollars that this Government can possibly spend because the cost of the increased number of Alzheimer's patients and the responsibility of the American people, as well as the Federal Government, to provide for their care will be a most challenging burden. It would be much better if we can do something at the point of inception of the illness rather than at the point of caring for the individuals.

So I am very happy to join with our chairman, Senator Grassley, in these hearings this morning and will look forward to seeing what new, innovative, constructive ideas some of our panelists will have for us this morning.

Thank you, Mr. Chairman.

Senator **Grassley**. And I thank you, Senator Metzenbaum, for your contribution and your leadership. A long time before I ever came to the Senate, you were involved in this, and we ought to recognize that for the pioneer work that you have done.

Now, we turn to Senator D'Amato, and his State is involved in much of this research. We look forward to your testimony, and Senator Metzenbaum has already alluded to your leadership in this area as well.

So I will say no more and ask you to proceed.

STATEMENT OF HON. ALFONSE D'AMATO, A U.S. SENATOR FROM THE STATE OF NEW YORK

Senator **D'Amato**. Thank you very much, Mr. Chairman.

Let me commend you for holding these hearings as we come toward the end of our legislative session. I cannot think of an area that properly deserves more concern. You, the chairman of the Subcommittee on Aging and Senator Metzenbaum are to be commended for your leadership role in this area.

Mr. Chairman, I ask that the full text of my statement be placed in the record as if read in its entirety.

Senator **Grassley**. Without objection, so ordered.

Senator **D'Amato**. Mr. Chairman, the fact that the number of people affected are estimated between 2.5 million and 7 million people, that the annual cost of Alzheimer's disease is over $20 billion, plus; that $5.6 billion alone is spent on home nursing care is an indication that this disease is a staggering economic burden on America.

That burden, however, is unquestionably the greatest to the individual and to the families. We have come a long way. It is important that the record reflect that in fiscal year 1983 we had appropriated over $18 million for Alzheimer's disease research, and as we enter fiscal year 1985, we are going to appropriate over $50 million with the possibility that there will be additional funds further along in the year.

There is an important area of concern that I have with funding for Alzheimer's. It certainly is not that we have increased funding to this extent. But rather it is that we maximize those dollars in a coordinated, interdisciplinary manner so that we see that we get the kind of research and control over these projects in this desperately needed area of medical research. It is important that we do not squander these dollars and see to it that we have the kind of control necessary to find the roots of this disease and bring it under control.

That is why, Mr. Chairman, I have introduced legislation entitled "The Alzheimer's Disease Research Coordination Act," which designates the National Institute of Aging as the primary institution for coordinating research.

I am very much concerned about the coordination of research efforts. I think Senator Metzenbaum touched upon a valid point. All too often those of us in the Congress want to see that our State gets its so-called fair share. That should not be the case in this undertaking, and I commend the Senator for recognizing that.

What we want to see is that the people of the United States get the best research for the dollar. Throwing dollars at this disease in the manner by which it aggrandizes various institutions is not the answer. I do not speak to one of the research institutions of NIH that have been mentioned. I am concerned, however, if we are going to have five more Alzheimer's disease research centers, and if we are going to have 200 research grants, that we see to it that they are the best projects, that they have the necessary monitoring and that there is an interdisciplinary approach to Alzheimer's research.

So I am very much concerned that Alzheimer's research does not deteriorate into a very specialized activity by various institutions. It is essential that we get the most results for our dollars because this is a disease which I desperately believe we can and must find the cause and cure. And so, Mr. Chairman, I would hope, that Congress will set about the task of seeing to it that we have the best coordinated effort for those moneys that we have allocated to combating this awful disease.

This Senator has continuously sponsored increases in appropriations for Alzheimer's disease research. I will continue to do so, but I would also ask that we see to it that these dollars are spent in a coordinated manner and that there is the kind of discipline necessary to see to it that these moneys, which are scarce indeed, do the best job that they possibly can.

Mr. Chairman, I thank you for the opportunity of making these remarks, and let me commend you, Senator Metzenbaum, for your efforts. I see my colleague, Senator Pressler, has arrived. He has held hearings in this area and his life has been personally touched by the tragedies of Alzheimer's disease. Understandably, he has taken a very special interest in this issue that afflicts so many.

Thank you, Mr. Chairman.

[The prepared statement of Senator D'Amato follows:]

STATEMENT BY SENATOR ALFONSE D'AMATO

FUNDING FOR ALZHEIMER'S DISEASE AND RESPITE CARE

SUBCOMMITTEE ON THE AGING

OCTOBER 2, 1984

I WANT TO THANK YOU, MR. CHAIRMAN, FOR HAVING THIS IMPORTANT HEARING TODAY. I WANT TO COMMEND YOUR ABLE LEADERSHIP AS CHAIRMAN OF THE SUBCOMMITTEE ON AGING. YOU HAVE BEEN SUCCESSFUL IN BRINGING THE URGENCY OF ALZHEIMER'S DISEASE TO THE ATTENTION, NOT ONLY OF THE GOVERNMENT, BUT TO THE AMERICAN PUBLIC AS WELL.

I WANT TO ALSO THANK OUR DISTINGUISHED PANELISTS FOR COMING TO THIS HEARING TO TESTIFY. IT IS THROUGH THE HARD WORK OF THESE PEOPLE AND OTHERS THAT SOCIETY IS BETTER ABLE TO FIGHT THIS TRAGIC DISEASE.

MR. CHAIRMAN, I HAVE SOME CONCERNS ABOUT THE GOVERNMENT'S INVOLVEMENT WITH ALZHEIMER'S DISEASE. ONE CONCERN IS ENSURING THAT INCREASED BIOMEDICAL RESEARCH FUNDS ARE USED AS EFFECTIVELY AND AS EFFICIENTLY AS POSSIBLE. ANOTHER CONCERN IS DETERMINING

HOW MUCH GOVERNMENTS AND TAXPAYERS ARE WILLING TO SPEND TO CARE FOR ALZHEIMER'S DISEASE SUFFERERS.

TODAY, RESEARCHERS ARE FEVERISHLY WORKING TO FIND THE CAUSE OF THIS PROGRESSIVELY DEGENERATIVE DISEASE. MANY ADVANCES HAVE BEEN MADE, BUT A BREAKTHROUGH IS STILL YEARS IN THE FUTURE. SCIENTISTS HOPE TO FIND THE CAUSE OF THE DISEASE SO THEY WILL BE ABLE TO PREVENT THE ONSET OF ALZHEIMER'S DISEASE FOR FUTURE GENERATIONS.

BUT WHAT BECOMES OF THE UNFORTUNATE MEMBERS OF OUR SOCIETY WHO HAVE ACQUIRED ALZHEIMER'S DISEASE OR WILL SUCCUMB IN THE NEAR FUTURE? IS THERE MONEY AVAILABLE TO PROVIDE ADEQUATE HEALTH SERVICES FOR THESE PEOPLE? WHAT IS THE BEST AND PROPER DIVISION OF OUR LIMITED RESOURCES BETWEEN RESEARCH FOR THE FUTURE AND HEALTH CARE AND RESPITE SERVICES FOR TODAY?

AS OUR NATION GROWS OLDER, NEW SOCIAL PROBLEMS EMERGE THAT NEED TO BE ADDRESSED. THE 85 YEARS AND OLDER AGE GROUP IS THE FASTEST GROWING SEGMENT OF OUR POPULATION. THIS PAST SPRING, I TESTIFIED BEFORE THIS COMMITTEE ON THE IMPORTANCE OF INCLUDING

RESPITE SERVICES IN THE OLDER AMERICANS ACT FOR FAMILIES WHO MUST CARE FOR A LOVED ONE WITH ALZHEIMER'S DISEASE. I COMMEND YOU, MR. CHAIRMAN, FOR PASSING THIS IMPORTANT LEGISLATION THAT WILL MAINSTREAM THE PROGRAMS OF THE OLDER AMERICANS ACT TO BETTER DEAL WITH CURRENT AND EMERGING PROBLEMS OF THE ELDERLY. I AM PLEASED TO NOTE THAT SOME COUNTY OFFICES FOR THE AGING IN MY STATE HAVE ALREADY BEGUN IMPLEMENTING RESPITE PROGRAMS. THE NEED FOR SUCH SERVICES IS GREAT AND GROWING ALL THE TIME. IT IS IMPORTANT THAT FEDERAL, STATE, AND LOCAL GOVERNMENTS NOT ONLY FINANCIALLY SUPPORT RESPITE SERVICES, BUT THAT THEY ALSO SUPPORT RESEARCH INTO THE TYPE OF CARE THAT ALZHEIMER'S PATIENTS DEMAND.

MOST OF THE FINANCIAL BURDEN OF ALZHEIMER'S DISEASE FALLS UPON THE FAMILY. THIS DISEASE, WHICH NOW AFFLICTS UP TO 2.5 MILLION PEOPLE, COSTS THIS NATION OVER $20 BILLION ANNUALLY, $5.6 BILLION FOR NURSING HOME CARE ALONE. THE FAMILY OF A SUFFERER CANNOT LOOK TOWARD ANY CURE OR TREATMENT; THE CAUSE OF THIS DISEASE REMAINS A MYSTERY.

MR. CHAIRMAN, LAST AUGUST, I INTRODUCED THE ALZHEIMER'S DISEASE RESEARCH COORDINATION ACT OF 1984. THIS BILL ADDRESSES SOME OF THE PROBLEMS OF RAPIDLY INCREASED FEDERAL SUPPORT OF ALZHEIMER'S DISEASE RESEARCH. THE BASIC AIMS OF THIS LEGISLATION ARE TO URGE A MORE INTERDISCIPLINARY SCIENTIFIC APPROACH TO RESEARCH, MORE RESEARCH ON HEALTH SERVICES, AND BETTER COORDINATION OF RESEARCH EFFORTS IN GENERAL.

ALZHEIMER'S DISEASE IS A VERY COMPLICATED DISEASE. IT CHANGES THE NEUROCHEMISTRY, PATHOLOGY, ANATOMY, AND PHYSIOLOGY OF THE BRAIN. TO SUCCESSFULLY RESEARCH THE EFFECTS OF ALZHEIMER'S, WE NEED MANY SCIENTIFIC DISCIPLINES WORKING TOGETHER IN A COORDINATED FASHION. MORE EMPHASIS ON A BROADER RESEARCH APPROACH WILL EXPEDITE THE GOAL OF FINDING THE CAUSE OF THIS MYSTERIOUS DISEASE.

AS COMPLICATED AS IS THIS DISEASE, SO TOO IS THE TREATMENT FOR THOSE WHO MUST LIVE WITH THIS DISORDER. I FEEL STRONGLY THAT CURRENT AVAILABLE HEALTH CARE METHODS FOR ALZHEIMER'S SUFFERERS ARE INSUFFICIENT. THESE PATIENTS HAVE SPECIAL NEEDS UNLIKE

SUFFERERS FROM ANY OTHER DISEASE. THUS, A CERTAIN AMOUNT OF OUR RESEARCH EFFORT MUST BE DIRECTED TO AMELIORATE THIS GROWING HEALTH CARE PROBLEM.

MY MAIN CONCERN, HOWEVER, IS THAT FEDERAL FUNDING FOR ALZHEIMER'S DISEASE HAS GROWN TO SUCH PROPORTIONS THAT IT MAY BE DIFFICULT FOR THE SEVERAL INSTITUTES AND AGENCIES TO SUCCESSFULLY COORDINATE RESEARCH ACTIVITIES. IN FISCAL YEAR 1983, ALZHEIMER'S DISEASE RESEARCH FUNDING WAS BETWEEN $17 AND $18 MILLION. FOR FISCAL YEAR 1985, IT IS NOW ESTIMATED SUCH RESEARCH WILL BE FUNDED AT A LEVEL OF OVER $50 MILLION.

THERE ARE SIX FEDERAL INSTITUTES OR AGENCIES THAT SUPPORT ALZHEIMER'S DISEASE PROJECTS. THE ADMINISTRATION ON AGING FUNDS 10 LONG-TERM CARE GERONTOLOGY CENTERS ACROSS THE NATION THAT DEVELOP COMMUNITY BASED CARE FOR OLDER PERSONS. THE NATIONAL INSTITUTES ON AGING, THE NATIONAL INSTITUTES OF ALLERGY AND INFECTIOUS DISEASES, AND THE NATIONAL INSTITUTE OF NEUROLOGICAL AND COMMUNICATIVE DISORDERS AND STROKE TOGETHER FUND ABOUT 200 GRANTS RELATING TO ALZHEIMER'S DISEASE. THE NATIONAL INSTITUTE

OF MENTAL HEALTH FUNDS OVER 40 SUCH GRANTS AND THE VETERANS ADMINISTRATION FUND UPWARDS OF 50 SUCH PROJECTS.

THERE IS NO REASON TO BELIEVE THAT THE GROWTH IN RESEARCH FUNDING WILL NOT CONTINUE. I BELIEVE IT IS IMPORTANT THAT SOME ENTITY, NOT NECESSARILY THE NATIONAL INSTITUTE ON AGING AS DESIGNATED BY MY LEGISLATION, BE IN CHARGE OF COORDINATING, NOT ONLY THE BIOMEDICAL RESEARCH EFFORTS, BUT ALSO THE HEALTH SERVICE RESEARCH EFFORTS. IT IS IMPORTANT THAT THIS ENTITY HAS ENOUGH POWER AND STAFF TO DO THE JOB WELL. I NOTE WITH INTEREST THE RECENT REPORT FROM THE ALZHEIMER'S DISEASE TASK FORCE URGING MORE COORDINATION OF RESEARCH EFFORTS.

I AM NOT SAYING THAT THERE SHOULD BE AN ALZHEIMER'S DISEASE COMMISSIONER OR CZAR. I AM AWARE OF THE BENEFITS OF UNRESTRAINED RESEARCH. SOME COORDINATION, HOWEVER, IS NECESSARY.

MR. CHAIRMAN, I DO NOT PRETEND TO BE AN EXPERT ON BIOMEDICAL RESEARCH IN THIS FIELD, BUT I AM CONVINCED THAT A LARGE AMOUNT OF FUNDS DISPERSED THROUGH SEVERAL AGENCIES CANNOT BE WELL COORDINATED.

THANK YOU, MR. CHAIRMAN.

Senator GRASSLEY. Senator D'Amato, I do not have any questions. Maybe Senator Metzenbaum does, but I would like to say that we are probably just at the beginning of trying to analyze whether or not there is the proper coordination and cooperation in the expenditure of this money and in the research activities. So I would invite you, even though you are not on this committee, because of your past interest to help us to monitor that, and hopefully to encourage that sort of cooperation because of the shortage of tax dollars going into this area.

We ought to strive for the maximum efficiency and effectiveness of its use.

Senator Metzenbaum.

Senator METZENBAUM. I am very happy to work with Senator D'Amato, and happy that he sees fit to join us this morning, and if he is busy elsewhere we will understand, but I think it is necessary that all of us in the Congress put our shoulder to the wheel because I think we are just scratching the surface, and we have to do so much more, and we can and will if we work together cooperatively as we have in the past.

Senator GRASSLEY. Senator D'Amato, you do want to join us here.

Senator D'AMATO. I thank you very much, Mr. Chairman, for the privilege.

Senator GRASSLEY. Would you please come on up here and sit beside me?

Senator D'AMATO. Thank you.

Senator GRASSLEY. Senator Pressler, I want in the introduction of you, to repeat what Senator D'Amato has already referred to, the fact that over the last 2 or 3 years you have shown a tremendous amount of leadership in this area by not only holding a hearing in your own State, but going around and helping with the hearings in the States of other Senators, and particularly from your point of view as a member of the Senate Special Committee on Aging.

You have been there even before I was on that committee, helping out in this effort. So I would ask you to move forward with your testimony at this point.

STATEMENT OF HON. LARRY PRESSLER, A U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator PRESSLER. Thank you, Mr. Chairman. I shall summarize because we have many fine witnesses.

Let me say that Senator Grassley and I held a joint hearing in Sioux City on Medicare, which is related to the issue before us today, because if we could find a cure we could save a lot of money in terms of nursing home costs. Let me also commend Senator D'Amato. One of our Senate Aging Committee hearings was hosted by him in New York City at a nursing home that is slightly larger than most we see out in the Midwest. We see 40-bed nursing homes out there. I think that the home in New York was a several hundred-bed nursing home.

Senator Metzenbaum, I have joined as a cosponsor of your amendments and bills and I want to commend you for your efforts in this area.

Rather than reading my testimony, let me say that since about 7 or 8 years ago when my father became afflicted with this disease, I have been very interested in it, obviously. Since that time I have met with a lot of Alzheimer's support groups around the country. This is such a mysterious disease. People who are perfectly healthy simply lose their memory and their awareness.

We have read in the New York Times, and Washington Post, and other fine publications that we are much closer to finding a link or finding the cause. If we could find the cause a lot of these perfectly healthy people could take care of themselves for another 5 or 10 years, and would not have to face expensive nursing home costs.

Also, let me say that this disease creates a great problem for the family members. The spouse who sometimes for a period of 10 years or more may have a partner who is perfectly healthy but does not remember anyone and is completely disoriented.

I agree with what Senator D'Amato said about a better coordination of research studies. I have asked that OTA do an assessment of the research which has been completed. There are bits of research being done here and there. There are scarce Federal dollars, but this is one area where I think we can spend some money and actually save money for our taxpayers.

Let me say that Senator Heinz and I held a field hearing in my home State of South Dakota on this subject. We also held one in New York. I have also taken every opportunity to participate in some of the Finance Committee hearings on Medicare, one of which I mentioned was hosted by Senator Grassley.

I authored a letter to Chairman Weicker of the Appropriations Subcommittee on Health and Human Services, requesting an additional $15 million for Alzheimer's disease research and $4 million for regional research centers. I know that several Senators here cosigned that letter.

We were pleased that the Senate appropriations bill included $23 million for research and $3.5 million for five centers specializing in research on this disease.

Since that time I have cosponsored three bills sponsored by our colleague, Senator Metzenbaum, with which I am sure many members of this subcommittee are familiar. One of the bills provided for an amendment to the Older Americans Act of 1965, requiring special consideration to assistance to those suffering from this and other neurological diseases.

I know that this subcommittee was instrumental in insuring language in the OAA reauthorization bill which prioritizes funding for supporting services for the Alzheimer's victim, and provides grants to students specializing in the care of these victims.

Another bill providing assistance for veterans was added as an amendment to the Veteran's health care amendments which clarifies the VA policy on Alzheimer's patients. With this language, those of us in the U.S. Senate have directed the Veterans' Administration to produce a program guide which will end any ambiguity regarding the authorization for and provision of treatment for veterans suffering from Alzheimer's disease. I think it is also important for us to talk about the private insurance world today.

It is almost impossible to buy insurance. Recently the Senate Special Committee on Aging held a hearing entitled "The Cost of

Caring for the Chronically Ill, the Case for Insurance." With this beginning step, the Senate is forced to examine the long-term cost impact on older Americans and review the fact that the insurance that most individuals carry does not pay for long-term care.

It is unfortunate that many are not aware of this until they find themselves forced into spending down to a Medicaid level in order to get the care they need. This reliance on Medicaid raises still more questions.

The Senate Aging Committee hearing on the option of long care insurance only brings to light some new ideas for us to consider. There are many difficult questions left to be answered.

So, in conclusion, I salute the members of this committee. I salute my colleague Senator D'Amato. I am not going to go through my entire statement, but I, too, would like to join the committee in listening to the fine witnesses present today.

Only yesterday in another city I spent some time talking with members of an Alzheimer's support group. I think that they should be saluted in the sense that they are the families who get together and discuss how to deal with this problem. We are certainly pleased that this subcommittee is taking so much action, and I commend you.

[The prepared statement of Senator Pressler follows:]

STATEMENT BY SENATOR LARRY PRESSLER
LABOR & HUMAN RESOURCES SUBCOMMITTEE ON AGING
HEARING ON FUNDING OF ALZHEIMER'S RESEARCH AND RESPITE CARE
OCTOBER 2, 1984

MR. CHAIRMAN: I am pleased to have this opportunity to participate in a hearing on the funding of Alzheimer's research and respite care. This is a vitally important subject. I believe that each time we meet on this issue, more people become aware of the tragedies of Alzheimer's Disease and we come closer to finding some answers. I therefore salute this committee and Senator D'Amato for being here today.

Last year, the Special Committee on Aging held two hearings on this issue at my request. The first was a field hearing in my home state of South Dakota. That hearing addressed the care available, the geriatric training needed to care for these patients, and the support groups which are available for family members who are heartbroken as they care for their loved ones suffering from the disease.

Senator Heinz and I then held a hearing in New York City which was hosted by my friend, Senator D'Amato. I believe that hearing made it most clear to all of us that legislative decisions are most important. We have just begun fruitful discussions on the need for long-term care for the patients stricken by this tragic ailment and financial assistance to families facing the high costs of skilled nursing home care.

Upon our return, I authored a letter to Chairman Weicker of the Appropriations Subcommittee on Health and Human Services re-

QUESTING AN ADDITIONAL $15 MILLION FOR ALZHEIMER'S DISEASE RESEARCH AND $4 MILLION FOR RESEARCH CENTERS. SENATOR HEINZ AND SENATOR D'AMATO CO-SIGNED THAT LETTER. AS A RESULT OF THAT ACTION, THE SENATE APPROPRIATIONS BILL INCLUDED $23 MILLION FOR RESEARCH AND $3.5 MILLION FOR FIVE CENTERS SPECIALIZING IN RESEARCH ON THIS ONE DISEASE.

SINCE THAT TIME, I HAVE COSPONSORED THREE BILLS WITH WHICH I AM SURE MANY MEMBERS OF THIS SUBCOMMITTEE ARE FAMILIAR. ONE OF THE BILLS PROVIDED FOR AN AMENDMENT TO THE OLDER AMERICANS ACT OF 1965 REQUIRING SPECIAL CONSIDERATION TO ASSISTANCE OF THOSE SUFFERING FROM THIS AND OTHER NEUROLOGICAL DISEASES. I KNOW THAT THIS SUBCOMMITTEE WAS INSTRUMENTAL IN ENSURING LANGUAGE IN THE OAA REAUTHORIZATION BILL WHICH PRIORITIZES FUNDING FOR SUPPORTIVE SERVICES FOR THE ALZHEIMER'S VICTIM AND PROVIDES GRANTS TO STUDENTS SPECIALIZING IN THE CARE OF THESE VICTIMS.

ANOTHER BILL PROVIDING ASSISTANCE FOR VETERANS WAS ADDED AS AN AMENDMENT TO THE VETERANS' HEALTH CARE AMENDMENTS WHICH CLARIFIES THE VA POLICY ON ALZHEIMER'S PATIENTS. WITH THIS LANGUAGE, THOSE OF US IN THE SENATE HAVE DIRECTED THE VETERANS ADMINISTRATION TO PRODUCE TO PRODUCE A PROGRAM GUIDE WHICH WILL END ANY AMBIGUITY REGARDING THE AUTHORIZATION FOR AND PROVISION OF TREATMENT FOR VETERANS SUFFERING FROM ALZHEIMER'S DISEASE. I SALUTE THE SENATE FOR TAKING THIS TYPE OF ACTION.

OUR WORK IS FAR FROM COMPLETE, HOWEVER. WE HAVE MANY ITEMS BEFORE THE CONGRESS WHICH COULD AID OUR UNENDING FIGHT AGAINST THE SAD EFFECTS OF THIS DISEASE. WE MUST TAKE A HARD LOOK AT THE LONG-

TERM CARE NEEDS OF THESE VICTIMS. RECENTLY, THE SENATE SPECIAL COMMITTEE ON AGING HELD A HEARING, ENTITLED "THE COST OF CARING FOR THE CHRONICALLY ILL: THE CASE FOR INSURANCE." WITH THIS BEGINNING STEP, THE SENATE IS FORCED TO EXAMINE THE LONG-TERM COST IMPACT ON OLDER AMERICANS AND TO REVIEW THE FACT THAT THE INSURANCE WHICH MOST INDIVIDUALS CARRY DOES NOT PAY FOR LONG-TERM CARE. IT IS UNFORTUNATE THAT MANY ARE NOT AWARE OF THIS UNTIL THEY FIND THEMSELVES FORCED INTO "SPENDING DOWN" TO A MEDICAID LEVEL IN ORDER TO GET THE CARE THEY NEED. THIS RELIANCE ON MEDICAID RAISES STILL MORE QUESTIONS. THE SENATE AGING COMMITTEE HEARING ON THE OPTION OF LONG-TERM CARE INSURANCE ONLY BRINGS TO LIGHT SOME NEW IDEAS FOR US TO CONSIDER. THERE ARE MANY DIFFICULT QUESTIONS LEFT TO BE ANSWERED. HOWEVER, I SPEAK AS A SENATOR WHO HAS HEARD FROM FAMILIES ALL OVER THIS COUNTRY WHEN I SAY THAT MANY ARE CRYING OUT FOR SOME FORM OF FINANCIAL ASSISTANCE. THE COSTS OF LONG-TERM CARE HAVE TAKEN ALL THEIR SAVINGS, THEIR HOMES AND THEIR BUSINESSES. THEY NEED HELP.

I AM MOST THANKFUL THAT THERE IS AN ORGANIZATION TO SUPPORT US WHILE WE WAIT FOR ANSWERS. THAT ORGANIZATION IS THE ALZHEIMER'S DISEASE AND RELATED DISORDERS ASSOCIATION. LOCAL CHAPTERS IN MY STATE HAVE BEEN OF GREAT HELP TO MANY FAMILIES IN SOUTH DAKOTA, INCLUDING MY OWN.

MR. CHAIRMAN, I SALUTE YOUR SUBCOMMITTEE FOR CALLING THIS HEARING. I LOOK FORWARD TO THE UPCOMING TESTIMONY FROM THE DISTINGUISHED WITNESSES. I INTEND TO STAY INVOLVED IN THIS ISSUE. I JUST LEARNED THIS PAST WEEK THAT THE OFFICE OF TECHNOLOGY ASSESSMENT HAS AGREED TO MY REQUEST FOR A STUDY OF THIS DISEASE. I HAVE DIRECTED OTA TO VERIFY THE EXTENT OF THE PROBLEM, TO SUMMARIZE THE RESEARCH THAT MIGHT IDENTIFY METHODS OF TREATING OR PREVENTING THE DISORDERS, AND TO INVESTIGATE WAYS OF DEALING WITH THE GROWTH IN DEMAND FOR LONG-TERM AND ACUTE CARE DUE TO THE RISE IN PREVALENCE OF THIS TRAGIC DISEASE. I LOOK FORWARD TO THIS INFORMATION AND WILL SHARE IT WITH MY COLLEAGUES ON THIS DISTINGUISHED COMMITTEE. THANK YOU.

Senator GRASSLEY. Thank you, Senator Pressler, and you are welcome as well.

Do you have any questions, Senator D'Amato or Senator Metzenbaum?

Senator METZENBAUM. No.

Senator D'AMATO. No.

Senator GRASSLEY. Then we will go to our first panel, and I would like to have you come all together. Our first panel consists of four individuals, well placed to discuss with us the organization of the Federal effort to make progress on the problems created by Alzheimer's disease.

First we will hear from Kenneth Davis, who is a professor of pharmacology in the Bronx VA Medical Center, Psychiatric Service.

Next is Dr. Donald Macdonald, recently appointed as Administrator of the Alcohol, Drug Abuse, and Mental Health Administration, which also has major responsibility in this area.

Third, Dr. Ed Olsen, who is Director of Development and Management Service, in the Office of Geriatric and Extended Care of VA. Given the burgeoning population of older veterans, the Veterans' Administration has a considerable stake in these issues.

And, lastly, Dr. James Wyngaarden, the Director of the National Institutes of Health, where considerable research is presently underway on the various problems the solution to which can help alleviate the ravages of this disease.

So would you go in the order in which I introduced you? I will be gone from 10:10 to 10:20, but Senator Metzenbaum will chair the hearing in my absence.

I am sorry. My staff informs me that we should have Dr. Wyngaarden and Dr. Macdonald go first. So, Dr. Wyngaarden, would you start out?

As an administrative thing I should have taken care of, and Senator Metzenbaum reminds me of, and I thank him, would you summarize your testimony in 5 minutes? Your entire statement will be printed in the record, but it is very essential that we do because we have to be done here by 11:25.

STATEMENTS OF DR. JAMES WYNGAARDEN, DIRECTOR, NATIONAL INSTITUTES OF HEALTH; DR. DONALD MACDONALD, ADMINISTRATOR, ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION; DR. KENNETH DAVIS, PROFESSOR OF PHARMACOLOGY, BRONX VA MEDICAL CENTER, PSYCHIATRIC SERVICE; AND DR. ED OLSEN, DIRECTOR, DEVELOPMENT AND MANAGEMENT SERVICE, OFFICE OF GERIATRIC AND EXTENDED CARE, VETERANS' ADMINISTRATION

Dr. WYNGAARDEN. Yes, sir. Thank you, Senator Grassley, and I will summarize.

Mr. Chairman, I am pleased to have this opportunity to present a brief overview of the NIH research activities related to Alzheimer's disease.

Let me begin by noting that the establishment of a task force on Alzheimer's disease last April by the Secretary of Health and

Human Services was a promising approach to a serious problem, and its activities have already proven successful.

The task force has addressed a need for coordinating research. It has served and will continue to serve as a mechanism by which all Department programs designed to serve the elderly can share information about this disease. It will be a vehicle for translating research into appropriate policies and programs, and its recent report has identified many promising research leads.

Another exciting approach was the establishment of a program of Alzheimer's Disease Research Centers, which Senator Metzenbaum already mentioned. That program was announced last December; 22 applications for support of such centers were received by the National Institute on Aging; and 5 awards were announced by the Secretary yesterday. There will be a second round of these awards, and, Senator Metzenbaum, there are two institutions in Ohio to be considered in the second round.

Senator **METZENBAUM**. Great.

Dr. **WYNGAARDEN**. Two of the directors of these newly constituted centers are here to testify today, Dr. Kenneth Davis and Dr. Donald Price.

These centers are aimed at multidisciplinary research and training and have mechanisms built in to assure information transfer to the community.

Much of our knowledge of Alzheimer's disease has been acquired during the past 10 years. Before that many believed that Alzheimer's disease was a rare brain disorder which typically occurred in persons in their early fifties. Two major international conferences sponsored by the National Institute of Neurological and Communicative Diseases and Stroke [NINCDS], the National Institute on Aging [NIA], and the National Institute of Mental Health [NIMH] focused attention on the relationships between senile brain disease and Alzheimer's disease.

An NIH consensus development conference on treatment possibilities helped to delineate the differences between normal aging and the disease processes in dementia.

As a result of these and other efforts, Alzheimer's disease is today recognized as the most common cause of severe intellectual impairment in older individuals. During the last decade, research has taught us a great deal about this disease. We now recognize, for example, that the brain of the Alzheimer's disease patient has unique anatomical characteristics. This is not a generalized brain disease.

Researchers have also learned that in the brains of Alzheimer's disease patients there is a marked deficiency of the neurotransmitter acetylcholine and of its synthesizing enzyme, choline acetyltransferase.

Senator **METZENBAUM** [presiding]. Go over that again.

Dr. **WYNGAARDEN**. In the brain of these patients there is a marked deficiency of the neurotransmitter acetylcholine and of the enzyme that makes that substance, which is called choline acetyltransferase. This enzyme deficiency is greatest in those areas of the brain that are involved in the memory loss characteristic of Alzheimer's disease.

Scientists have discovered that the nerve cells in part of the brain of an Alzheimer's disease patient have undergone extensive degeneration. This has occurred particularly in the nucleus basalis. I want to emphasize the point that this is a specific disease of an area of the brain. It is not generalized brain deterioration.

Senator **Metzenbaum**. Is that distinguishable from general senility?

Dr. **Wyngaarden**. Yes, indeed.

Senator **Metzenbaum**. So that with Alzheimer's you have it zeroed in at a particular locus of the brain?

Dr. **Wyngaarden**. Yes, and this is a very active field of research. There have been several reports in the past year on particular areas of the brain concerned with memory and reasoning that are affected by this disease. It clearly is distinguished from generalized deteriorative diseases of the entire brain, or the cortex, for example, and that is a powerful statement in terms of directing research along lines that I will come to that might potentially be responsible for those specific changes.

Other research related to brain metabolism has shown that the Alzheimer's brain uses less glucose, which is the main source of brain energy. This kind of research, that is, research on brain metabolism, is greatly facilitated by the use of the positive emission tomographic [PET] scanner, which is the most advanced approach to measuring localized metabolic activity in the brain.

We do not yet know the cause or causes of Alzheimer's disease, and currently scientists are testing several hypotheses. One of these is a genetic theory. While on the average, a person's chance of developing this disease is about 1 percent, the odds increase fourfold or more if a close relative is affected.

Senator **Metzenbaum**. How much historical data is available with respect to the matter of Alzheimer's going back over a period of many years? In other words, as I said in my opening statement, and I am not medically trained, most of us never heard much of Alzheimer's 10, 15, or 20 years ago. Now, my question is: If we did not hear of it, I question whether the medical profession has heard much about it. Therefore, I question how did they make a diagnosis 20 years ago, 40 years, 60 years.

Dr. **Wyngaarden**. You are quite correct. When I was a medical student it was taught to be a relatively rare disease of early loss of mental faculties primarily of people in their fifties, and "senile dementia" was a term used to cover a large range of deteriorative intellectual functions in the elderly.

We now know that a large percentage of patients formerly classified as having senile dementia really had Alzheimer's disease. This knowledge grew out of pathological studies, some of which will perhaps be described by other members of the panel this morning.

Another theory on the cause of Alzheimer's disease is the immunological theory. This theory is based on the idea that the body mounts a self-destructive attack on certain proteins of the brain.

A third major theory is the viral theory. Scientists have noted that patients with kuru, another dementing disease, have brain plaques similar to those found in Alzheimer's disease. Kuru is a disease studied extensively in New Guinea by Dr. Carlton Gajdusek, an NIH scientist at NICDS. Dr. Gajdusek won a Noble Prize for this work. This is a disease that is caused by one of a class of agents known as slow viruses. These organisms incubate in the nervous system for years or even decades before becoming active and causing damage.

Investigators have seen similar plaques when they innoculate sheep and hamsters with scrapie, another slow virus that ordinarily affects sheep. Scrapie provides a potentially valuable animal model and allows us to investigate this viral theory.

Many scientists supported by the Public Health Service are conducting research on normal aging and on the organization of the brain and its neurotransmitters. Eventually this work should help us to understand Alzheimer's disease and perhaps to treat it or to prevent its progression.

Applied research is also underway. Work with the PET scanner is one such activity. Scientists are also trying to devise more accurate tests for early diagnosis of Alzheimer's disease. Investigators are conducting a longitudinal study of an aging population and hope to increase our understanding of the natural history of Alzheimer's disease and other progressive dementias.

From studies like this, we should get a better idea of risk factors for this disease.

In the area of applying our research to medical practice, there is increasing recognition by clinicians of the necessity to carry out a thorough differential diagnosis and to rule out potentially treatable causes of dementia, such as depression or drug-induced problems, before concluding that a person has Alzheimer's disease. We are working closely with the private sector in this regard.

Senator **Metzenbaum**. Could you wind up pretty shortly, Doctor?

Dr. **Wyngaarden**. Yes. I am nearly finished.

In 1983, NINCDS, in collaboration with NIA, convened a working group of clinical investigators to provide a diagnostic guide for Alzheimer's disease.

At the level of treatment, efforts are underway in a number of research institutions to test the effectiveness of various drugs, but it is too early to state with any confidence that these are effective.

The recent report of the Secretary's task force identified a number of priorities for the future in research and in diagnosis and treatment.

In conclusion, Mr. Chairman, I think we have made substantial progress in a short time in understanding Alzheimer's disease. I believe that progress will continue, and will extend before too long to identifying the cause or causes, and this should lead to new insights that may allow prevention or limitation of the progress of the disease.

NIH will continue to emphasize research and explore scientific opportunities—and approaches which today offer the best hope for progress against this disease.

Thank you, Senator Metzenbaum and Senator D'Amato.

I have with me Dr. Katherine Bick and Dr. Zaven Khachaturian of the NINCDS and NIA, who are experts in this field, for specific questions.

[The prepared statement of Dr. Wyngaarden follows:]

STATEMENT BY

JAMES B. WYNGAARDEN, M.D.

DIRECTOR
NATIONAL INSTITUTES OF HEALTH

before the

LABOR AND HUMAN RESOURCES COMMITTEE

SUBCOMMITTEE ON AGING

UNITED STATES SENATE

OCTOBER 2, 1984

Mr. Chairman, I am pleased to have the opportunity to present a brief overview of NIH research activities related to Alzheimer's disease. You are well aware of the devastating nature and extent of the problem, and I will not therefore go into detail about that. Instead, I will focus on some of our specific research activities, the current status of knowledge about Alzheimer's disease, priorities for further progress, and activities directed toward coordination of research.

Let me begin by noting that the establishment of a Task Force on Alzheimer's Disease by the Secretary of Health and Human Services was a very promising approach to a serious problem, and its activities have already proven successful. The Task Force has addressed a need for coordinating research, it has served and will continue to serve as a mechanism by which all Departmental programs designed to serve the elderly can share information about the disease, it will be a vehicle for translating research into appropriate policies and programs, and its recent report has identified many promising research leads. I believe that the focus placed on Alzheimer's disease by the Secretary and the Task Force has already been fruitful and holds great promise for the future.

Another exciting approach was the establishment of a program of Alzheimer's Disease Research Centers. Twenty-two applications for support of such centers were received by NIA, and the Secretary will today be announcing the awards of the first grants in this field for multifaceted research centers. The high quality of the majority of the applications is indicative of the fact that many research scientists are now prepared to move quickly to address all aspects of Alzheimer's disease. These centers are aimed at multidisciplinary research and training and have mechanisms built in to assure information transfer to the community.

Several of our research institutes are participating in this centers program and also sponsor other research activities. In FY 1984, we anticipate that NIH will have spent approximately $35 million for research in Alzheimer's disease, compared with $22 million in 1983.

Much of our knowledge of Alzheimer's disease has been acquired during the past 10 years. Before that, except for a few experts in the scientific and medical communities, many believed that Alzheimer's disease was a rare brain disorder which typically occurred in persons in their early 50's. In 1977 and 1978, two major international conferences, sponsored by the National Institute of Neurological and Communicative Disorders and Stroke (NINCDS) and the National Institute on Aging (NIA) of NIH, and the National Institute of Mental Health of the Acohol, Drug Abuse, and Mental Health Administration, focused attention on the pathological and clinical relationships between senile brain disease and Alzheimer's disease. In 1979, an NIH consensus development conference on treatment possibilities for mental impairment in the elderly helped delineate the difference between normal aging and the disease process in dementia.

As a result of these and other efforts, Alzheimer's disease is today recognized as the most common cause of severe intellectual impairment in older individuals. In addition, a dementia pathologically similar to Alzheimer's disease is observed rarely in individuals in their 40's, 50's, and early

60's. The uncertainty about whether this "presenile dementia" is identical with the condition that occurs in older individuals, and the recognition that Alzheimer's disease is an abnormal condition of the aging brain and not a natural consequence of aging, have provided strong encouragement to study the condition and to develop a foundation for effective treatment and prevention.

During the last decade, research has taught us a great deal about this disease. We now recognize, for example, that the brain of the Alzheimer's disease patient has some unique characteristics. It has specific anatomical lesions called neurofibrillary tangles and neuritic plaques.

Neurofibrillary tangles, found in the cell bodies of the brain cells, are made up of fine nerve filaments twisted around each other. Research has disclosed that the tangles are made up of an abnormal protein that is particularly insoluble and hard. Other research has linked a specific enzyme, transglutaminase, to the formation of this abnormal protein. This latter finding is an important clue about how these proteins develop.

The neuritic, or senile, plaques also contain an abnormal protein in addition to degenerating pieces of the nerve cell endings that surround the core of fibrous protein material, amyloid.

These plaques and tangles in the brain can to a degree be correlated with the severity of the changes in memory and other brain functions that an Alzheimer's disease patient experiences. More research is being undertaken to increase our understanding of these changes in the brain and to attempt to learn whether they are a result of the disease or, perhaps, a contributing factor.

At the neurochemical level, researchers have learned that in the brains of Alzheimer's disease patients there is a marked deficiency of acetylcholine and its synthesizing enzyme, choline acetyltransferase (CAT). Acetylcholine is one of several neurotransmitters, chemical compounds produced within nerve cells to allow communcation between cells. The enzyme deficiency is greatest in the areas of the brain recently determined to be crucially involved in the memory loss characteristic of Alzheimer's disease. The nerve cells in this part of the brain, the basal forebrain, send fibers to many parts of the mantle of the brain and to the hippocampus--a specialized area of the brain important to memory. These nerve cells use acetylcholine as their neurotransmitter. Scientists have discovered that in Alzheimer's disease patients the basal forebrain neurons had degenerated. We believe that the death of these cells may cause the brain damage of Alzheimer's disease. Thus, we can now tie together the loss of the enzyme CAT and the specific location of the neurons which die in Alzheimer's disease.

Other research, related to brain metabolism, has shown that the Alzheimer brain uses less glucose, the main source of brain energy and the substance necessary for the production of acetylcholine. There is also evidence of decreased amounts of one of the key enzymes, pyruvate dehydrogenase, needed for breaking down glucose and synthesizing acetylcholine. Research on brain metabolism is greatly facilitated by the use of the PET (positron emission tomographic) scanner, the most advanced approach to measure and localize metabolic activity in the brain.

We do not yet know what causes Alzheimer's disease. Currently, scientists are testing several hypotheses. One is the idea that the body mounts a self-destructive immunological attack as a response to the abnormal proteins seen in the neurofibrillary tangles and senile plaques. Another is the theory that the blood-brain barrier is violated and foreign matter, such as a virus, bacteria, or other protentially harmful substance, enters the brain and damages it in such a way as to cause Alzheimer's disease. (In healthy people, the blood-brain barrier, a cellular wall, is protective against potentially harmful materials that could enter the brain from the blood stream.) If this theory holds, more research will be needed to determine why the blood-brain barrier is imperfect in Alzheimer's disease patients.

The immunological and blood-vessel theories provide alternative explanations of how the brain is devastated. But what affects the brain? What activates the immune system or passes through the blood-brain barrier? Scientists have several different theories. One is the genetic theory. Although Alzheimer's disease doesn't appear to follow strict Mendelian laws of inheritance, the disease sometimes does occur in families. While the average person's chance of developing the disease is about 1 percent, the odds increase four-fold or more if a close relative is affected. There is no clear-cut genetic component, but we suspect a genetic aspect, perhaps a genetic predisposition or propensity to the disease. We are now studying those families in which there are clusters of victims.

Another theory of the causation of the disease is the viral theory. Scientists have noted that patients with kuru, another dementing disease, have brain plaques similar to those in Alzheimer's disease. Kuru is a viral disease of the brain caused by one of a class of agents known as slow viruses. These organisms incubate in the nervous system for decades before becoming active and causing damage. Investigators have also seen similar plaques when they inoculate mice and hamsters with scrapie, another slow virus that ordinarily affects sheep. Important in its own right for its significant damage to sheep, scrapie provides a potentially valuable animal model and allows us to investigate this viral theory.

The environmental theory offers still another explanation. For example, some studies have found that aluminum is present in higher than usual concentrations in the brains of Alzheimer's disease patients. We know that aluminum is toxic to the brain and causes abnormal brain function. Studies in Guam are suggesting that high intake of aluminum over a long period of time, coupled with chronic low intake of such vital minerals as calcium and magnesium, ultimately results in a breakdown of the normal mechanism by which minerals are metabolized. Research on the role of these and other minerals is continuing.

Research Leads

Many scientists supported by the Public Health Service (PHS) are conducting basic research which should uncover clues as to the cause and, eventually, the prevention of Alzheimer's disease. Research on normal aging and on the organization of the brain and its neurotransmitters will uncover new information that promises to lead to a better understanding of the brain, the way we think, and how our memory works. Eventually this work should help us to understand Alzheimer's disease and perhaps to treat it or prevent its progression.

Specific research is also targeted on the disease process. For example, PHS-supported scientists are studying a putative new agent, the prion, to determine if Alzheimer's disease has an infectious origin or component. Immunological and molecular biology techniques are being used to study the origin of neurofibrillary tangles and other facets of the disease. Investigators are also studying the unusual properties of the tangle proteins which make them so resistant to solution. One group of scientists is tracing the specific connections of the nerve pathways involved in higher mental functions, and others are studying hormones and neurotransmitter relationships in the brain.

Applied research is also under way. Work in PET scanning is one such activity. As I mentioned earlier, PET scans of Alzheimer's disease patients have allowed us to correlate specific metabolic changes in the brain with specific symptoms in Alzheimer's disease. PHS-funded scientists are also trying to devise more accurate tests for early diagnosis of Alzheimer's disease. These investigators are conducting a longitudinal study of an aging population and hope to increase our understanding of the natural history of Alzheimer's disease and other progressive dementias. From studies like this, we should get better ideas of risk factors for the disease.

Research progress continues to be made. Most recently, an important report appeared regarding the apparent mechanism by which synthesis of the functional proteins in brain cells is decreased in Alzheimer's disease. In autopsied diseased brains, scientists at Harvard Medical School found little more than half the normal amount of RNA and an excess of an enzyme that normally breaks down RNA.

In the area of applying our research to medical practice, there is increasing recognition by clinicians of the necessity to carry out a thorough differential diagnosis and to rule out potentially treatable causes of dementia, such as depression or drug-induced problems, before concluding that a person has Alzheimer's disease. Often, multiple diseases in the elderly obscure the symptoms of Alzheimer's disease, or may speed the progress of the disease. We are working closely with the private sector in this regard. In 1983, NINCDS, in collaboration with NIA and the National Institute of Mental Health (NIMH) and in association with the Alzheimer's Disease and Related Disorders Association, convened a working group of clinical investigators, who prepared a guide to diagnosis of Alzheimer's disease. This guide has been widely circulated. In addition, the American Association for Retired Persons, collaborating with NIA, NINCDS, and NIMH, sponsored a research workshop on the diagnosis of Alzheimer's disease, to identify areas of scientific opportunity and develop future plans for research on diagnosis.

At the level of treatment, efforts are under way in a number of research settings to test the effectiveness of various drugs on brain function. These efforts are still at the experimental stage; it is too soon to state with any confidence whether they may be effective.

But even without an effective drug therapy for Alzheimer's disease, we have learned that much can be done to help patients and their families manage and live with this disease. With the help of such groups as the Alzheimer's Disease and Related Disorders Association, families get along remarkably well for long periods of time, although often at a heavy emotional and physical price for everyone. Respite for the family members through temporary substitute care for the affected person is most important. As you may know, the Secretary has recently announced a Departmental initiative relative to respite care. It will include closer coordination of current activities and funding of additional studies of respite care alternatives.

In addition, the recent report of the Secretary's Task Force identified a number of priorities for the future, including further studies to develop a clearer picture of the clinical manifestations of Alzheimer's disease, its earliest signs and symtoms, the changes it causes in behavior, its overall course, and its prevalence; improvement in diagnostic and treatment capabilities; and improvements in transferring the most up-to-date information to practicing professionals who are providing care.

In conclusion, Mr. Chairman, I think we have made enormous progress in a short time in understanding Alzheimer's disease. I believe the progress will continue and will extend before too long to identifying the cause or causes of this disease and permitting its prevention or limitation. We must be cautious, however, in our estimates of how soon or how far we may be able to go in correcting the devastating effects of Alzheimer's disease through medications. NIH will continue to emphasize research and explore scientific opportunities--approaches which today offer the best hope for progress against this disease. Until there is a major medical breakthrough, we can offer patients and their families the hope that we can lighten their burden through good medical care and increased public understanding of the devastation of Alzheimer's disease.

Thank you.

I will be pleased to answer any questions you may have. I am also joined today by Dr. Katherine Bick of NINCDS and Dr. Zaven Khachaturian of NIA, who are both experts in this field.

BOOKLET REFERRED TO BY DR. WYNGAARDEN

Alzheimer's Disease

A Scientific Guide for Health Practitioners

U.S. DEPARTMENT
OF HEALTH
AND HUMAN SERVICES
Task Force on
Alzheimer's
Disease

BOOKLET REFERRED TO BY DR. WYNGAARDEN

PROGRESS REPORT ON ALZHEIMER'S DISEASE: Volume II

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Institutes of Health

BOOKLET REFERRED TO BY DR. WYNGAARDEN

views & reviews

Article abstract—Clinical criteria for the diagnosis of Alzheimer's disease include insidious onset and progressive impairment of memory and other cognitive functions. There are no motor, sensory, or coordination deficits early in the disease. The diagnosis cannot be determined by laboratory tests. These tests are important primarily in identifying other possible causes of dementia that must be excluded before the diagnosis of Alzheimer's disease may be made with confidence. Neuropsychological tests provide confirmatory evidence of the diagnosis of dementia and help to assess the course and response to therapy. The criteria proposed are intended to serve as a guide for the diagnosis of probable, possible, and definite Alzheimer's disease; these criteria will be revised as more definitive information becomes available.

Clinical diagnosis of Alzheimer's disease:

Report of the NINCDS-ADRDA Work Group* under the auspices of Department of Health and Human Services Task Force on Alzheimer's Disease

Guy McKhann, MD; David Drachman, MD; Marshall Folstein, MD; Robert Katzman, MD;
Donald Price, MD; and Emanuel M. Stadlan, MD

Alzheimer's disease is a brain disorder characterized by a progressive dementia that occurs in middle or late life. The pathologic characteristics are degeneration of specific nerve cells, presence of neuritic plaques, and neurofibrillary tangles. Alterations in transmitter-specific markers include forebrain cholinergic systems, and, in some cases, noradrenergic and somatostatinergic systems that innervate the telencephalon.

A Work Group on the Diagnosis of Alzheimer's Disease was established by the National Institute of Neurological and Communicative Disorders and Stroke (NINCDS) and the Alzheimer's Disease and Related Disorders Association (ADRDA). The group intended to establish and to describe clinical criteria for the diagnosis of Alzheimer's disease of particular importance for research protocols and to describe approaches that would be useful for assessing the natural history of the disease. The need to refine clinical diagnostic criteria has been emphasized because 20% or more of cases with the clinical diagnosis of Alzheimer's disease are found at autopsy to have other conditions and not Alzheimer's disease. Moreover, therapeutic trials can be meaningfully compared only if uniform criteria are used for diagnosis and response to treatment.

The need for this report was suggested by the National Advisory Council of the NINCDS. The report has been reviewed by workshop participants, representatives of the National Advisory Neurological and Communicative Disorders and Stroke Council, representatives of the ADRDA, and designated reviewers representing professional societies concerned with the diagnosis of Alzheimer's disease. (For list of professional societies and designated reviewers, see page 943.)

The report was developed by subgroups that addressed medical history, clinical examination, neuropsychological testing, and laboratory assessments; the report was then discussed in plenary session. Based on a consensus of the participants, criteria were developed to serve as a clinical basis for diagnosis. These criteria should be useful also for comparative studies of patients in different kinds of investigations, including case control studies, therapeutic trials, evaluation of new diagnostic laboratory tests, and clinicopathologic correlations.

The criteria are not yet fully operational because of insufficient knowledge about the disease. The criteria are compatible with definitions in the current Diagnostic and Statistical Manual of Mental Disorders (DSM III) and in the International Classification of Diseases. These criteria must be regarded as tentative and subject to change. Additional longitudinal studies, confirmed by autopsy, are necessary to establish the validity of these criteria in com-

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*For Work Group Participants and Affiliations, see page 943.

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Senator METZENBAUM. Thank you very much, Dr. Wyngaarden. Let me just ask a question about the grants and the grant program.

So often in our research grants, a very substantial portion of the money is used in teaching programs and for university overhead. What can you tell us specifically with respect to the five grants that have just been announced and what proportion will actually be used in applied research?

Dr. WYNGAARDEN. Let me ask Dr. Khachaturian. The sum of those awards is $700,000 each. Is that the direct or total cost?

Dr. KHACHATURIAN. That is the total cost.

Dr. WYNGAARDEN. The total cost per center is $700,000; the overhead rate depends on the rate that institution has negotiated with the Government. In general, the overhead on NIH grants amounts to about 30–31 percent of the total award, on average.

Senator METZENBAUM. And will the balance of approximately 70 percent be used for applied research, or how much of it will be used for teaching?

Dr. WYNGAARDEN. The funds in these centers are to provide core support for coordination of activities, teaching, research, and certain central services, including tissue autopsy studies. In the centers that have received support in the first round, there is already substantial research support, which was one of the factors leading to the high priority that they received, so that many specific research projects are funded by other grants from NIMH, NIA, or NINCDS, or from private sector awards.

So these are core grants to coordinate functions and provide support for those functions.

Senator METZENBAUM. I am not sure that I got an answer to my question. What I am really asking is: Will the $3.5 million, if you take off about $1 million for the 30 percent overhead; now what I am really asking is will the other $2.5 million be used and directly applicable for research, or will it be allocated for teaching programs at the various institutions?

Dr. WYNGAARDEN. No, it is not for teaching. There will be training at these institutions, but the training of scientists is supported by other funds through regular mechanisms for training grants and training fellowships.

The three major areas that will be supported by the core grants are the administrative unit to manage the overall activities of the center; the research support unit, which serves the functions of patient registry, coordination, and evaluation, clinical, pathological, social, behavioral, and epidemiological data gathering, storage, coordination, and analysis; and an autopsy unit either on the site or available through specified contractual arrangements, which serves the function of collecting, storing, and distributing brain tissue and the research services associated with that.

So training, teaching, and community outreach are all handled by other funds. The actual core funds are to coordinate research activities.

Senator METZENBAUM. Well, I think that my question has implicit in it the frustration that some of us feel that when we get money for research, we find that it is used for teaching.

That is not to indicate that we do not support funding for teaching in other programs, but when we spend money for research, at least this Senator thinks, and I think most of us think, that we are going to get applied research, actual research, and I would include in that the autopsy kind of work.

Dr. **Wyngaarden**. Yes, I agree with you, Senator, and I can assure you that the NIH awards are for research. Teaching is not a function directly supported by an NIH research grant. A research grant may indirectly improve the teaching environment and strengthen the scientists in other activities such as teaching, but that is not the activity that is directly supported by the grant.

Senator **Metzenbaum**. Thank you, Dr. Wyngaarden.

Our second witness was, according to the chairman, Dr. Macdonald.

Dr. **Macdonald**. Yes, sir. Thank you, Senator Metzenbaum.

I am delighted to be here with Dr. Wyngaarden to address our concerns about this most important subject. I too, will summarize my statement and try to keep my time within the appointed 5 to 7 minutes.

Research into Alzheimer's disease is a major priority for the Alcohol, Drug Abuse, and Mental Health Administration also, and as you stated earlier, it is certainly one of Secretary Heckler's highest priorities. As was previously mentioned, she appointed a task force which is a departmental agency or organization chaired by Dr. Edward Brandt, Jr., the Assistant Secretary for Health, and the work of that committee began in 1983.

Secretary Heckler has subsequently said that she wants that committee to continue in an active role of coordinating what is going on.

The book which Senator Grassley held up at the beginning of these hearings is one of the early fruits of what has been happening in the last year and some months. In this book, there are many recommendations dealing with biomedical research goals including the state of the art as it now exists, defining training need for health care professionals, disseminating better information for families and practitioners, and identifying the need to develop new approaches for provision of care to the approximately 2 million Alzheimer's victims in this country.

This is the work of scientists both within the Government and outside the Government, from hospitals and universities, and gives a broad scientific consensus of where we stand today in the study and treatment of Alzheimer's disease, aiming particularly at the most promising areas for future research.

This book, which we hope will be widely distributed, will help speed information to practitioners and researchers alike, and will help us on our road to victory over the devastating of Alzheimer's disease.

The Secretary was particularly pleased, and we at ADAMHA are especially pleased, about the strong emphasis on families in this report. Families, as we all know, are primary care givers for many of the Alzheimer's disease patients, and the family falls victim just as surely as the patient as the disease progresses.

There are several new initiatives coming up within the Department. One is a conference in the spring of 1985 which will be held in Washington, DC, for families and organizations which serve families to discuss the research findings and treatment and cure for victims. We also intend to learn from some of their families and use them in looking at our future projects.

The second initiative deals with respite care, which is one of the concerns of today's hearing. The Secretary shares the concern of Senator Grassley, and others, that this most important issue of relief of family needs to be looked at more strongly. There are a number of demonstration projects that have been awarded this year dealing with respite care. They look at such issues as how often, how early, how long, and for whom respite care should be provided.

The Secretary has promised by releasing this report in late September that in fiscal year 1985 more attention will be paid to the issue of respite care in terms of additional grants.

Senator D'AMATO. Doctor, if I might, Mr. Chairman.

Senator METZENBAUM. Surely.

Senator D'AMATO. Let me tell you what concerns me. Do you have this little booklet published by the Secretary's task force on Alzheimer's disease entitled "Alzheimer's Disease"?

Dr. MACDONALD. Yes, sir.

Senator D'AMATO. Would you turn to page 68? It says: "Administration on Aging, Grants Relating to Alzheimer's Disease." Do you see it?

Mr. MACDONALD. Yes, sir.

Senator D'AMATO. It goes on for pages and pages. Sidney Katz, $573,000; Barry J. Kurland, M.D., $573,000; Evan Sorber, $512,000; Eric Pfeiffer, $573,000; Frederick Tavel, $514,000, and it goes on and on.

When we go over to the next page, we have National Institute on Aging, Grants Relating to Alzheimer's disease, and then we start Barry Reisberg, $127,000, $80,000 with the next person, $835,000 and $40,000 for others.

What are you giving someone $40,000 for? Why? Where is the coordination? What are we doing?

I am very much concerned, and I would like to know what we are doing to see to it that this is not just a program where we are shoveling money out. I want to know what kind of interdisciplinary approach do we have toward Alzheimer's disease research.

I do not want 20 different Alzheimer's Disease Research Centers. How do you like that? I do not want 10 centers if it will mean uncoordinated or undirected research efforts. If they have got to cut it out of New York, cut it out of New York, but I want to see to it that we maximize what our activities should and can be in terms of the research necessary to conquer this debilitating disease.

We have a history in this Nation of spending billions of dollars in research and having some of the most ghastly results over the years. Now we are on the Alzheimer's disease kick. This is a Senator who has moved to appropriate more money for Alzheimer's disease. I joined with Senators Metzenbaum, Grassley, and Pressler to increase the appropriations for Alzheimer's disease. I am not suggesting that $50 million may be enough. It probably is not. But what I am saying is that we have researchers such as Paul D. Coleman, University of Rochester, which is in my State, getting $63,000 without some semblance of coordination. What is he going to do there with this money? How much can he do with $63,000?

Here is someone else, $71,000, Yeshiva University. Here is someone else, $161,000, McLean Hospital, and they go and go and go. How do you administer 200 or 300 grants? I want to tell you I think that there is probably much money wasted.

Dr. WYNGAARDEN. Senator, if I may address that, most of these are awards made by the National Institutes of Health, and most of them are in NIA and NINCDS.

The coordination within those institutes is at multiple levels. There are program managers that administer this clusters of grants. There are scientific directors who oversee the activity. There are institute directors who oversee them.

Senator D'AMATO. Doctor, before we get into your explanation, and you are entitled. I have expressed very strong concerns about these research funds, but, I would hate to have it interpreted that I am not for these moneys. I think I have set the record straight that I have worked to increase funding for Alzheimer's disease. But I become very suspicious when I see a grant for $5,664 or a grant for $22,000. What can a researcher accomplish with $22,000?

That is why I introduced the legislation I did, to see to it that we have real accountability. People would be shocked if they thought that there is political pork in research of such importance. We have a Nation of people who are concerned about Alzheimer's disease, who are wondering, who are frightened, who see up to 7 million people who are afflicted, costing $20-plus billion a year, and I want to tell you that they would be distraught if they believed that their research tax dollars were being wasted.

Dr. WYNGAARDEN. I am sorry?

Senator D'AMATO. I think you have got a lot of grants constiting of a lot of money. When you start giving out this money, $63,000 to this one, and $48,000 to that one, and $32,000 to this one, and $6,000 to someone else, I question whether or not we are really getting the kind of work and commitment that we should for Alzheimer's disease research.

Dr. WYNGAARDEN. Senator, your comments are very well taken, and the concern you expressed is very real. We think that we have addressed those problems since the beginning of the NIH. The award system is based on a peer review mechanism. Applications are reviewed by scientists in the field so that the initial level of coordination is at the study section level, where other workers in that field evaluate the proposal and rank it in terms of its scientific merit and technical feasibility.

Some of the large grants there are internally coordinated. They are program project grants in which several investigators in the same institution may band together to apply for support of related projects. All of that is coordinated within the administrative mechanism of the various institutes by the Grants Management Division, and there are program coordinators that look after related areas of interest.

There are many conferences that are sponsored, and frequently cosponsored, in this area, for example, by NIA and NINCDS, which bring together workers in related fields, such as those dealing with neurochemistry or clinicians dealing with diagnostic criteria. These

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conferences go on repeatedly; we have discussed some of them, and others are planned for the future.

Senator D'Amato. Well, doctor, what freedom do these researchers have with their grants and how closely are the guidelines set? How closely do you monitor their activity and how often does that come up for review?

Dr. Wyngaarden. Each application is funded on the basis of the project proposed and on the basis of the capability and promise of the investigators and the adequacy of the environment to conduct the research.

The investigator is expected to pursue the theme of that project. There is considerable flexibility to follow new leads and discoveries as they emerge. The grant is both a decision to pursue a given project and an investment in the scientist to follow those leads which are most promising.

If there is a major departure in the theme that is suggested by an unanticipated discovery, we expect the scientist to inform us of that and obtain guidance and permission from the institute.

Every investigator files an annual progress report, which is reviewed by our staff. At the end of the grant award period, which is 3 to 5 years, the investigators files a summary project report. That report, which covers the entire project time, is a very strong component of an application for renewal of the award, if the investigator applies for a renewal, and most of them do.

So there is a great deal of interplay. Our health scientists administrators know these scientists. Our institute directors travel around the country from time to time and visit institutions where work is being done. So we think that there is excellent communication between the institutes and the scientists. This is done in a supportive way, not primarily to inhibit scientists from following new leads as they develop, but to make certain that we know the essence of the discoveries that are being made.

Senator Grassley. Following up on Senator Metzenbaum's and Senator D'Amato's questioning, is the task force the one with the responsibility? Will they do the coordination in the future now?

Dr. Wyngaarden. Yes; it is an ongoing task force.

Senator Grassley. But I want to know. There are task forces that accomplish things, and then there are task forces that are public relations types.

Dr. Wyngaarden. No; I can assure you that is not the case.

Senator Grassley. That is a sincere question because I do not want to label. I just know that in the 10 years I have been here in Washington that some of them can be very effective, but bureaucratic turf protection is a problem for most task forces, and there has got to be a real sense of purpose of everybody who is involved in the various agencies if there is really going to be success.

I guess I am asking for your qualitative judgment, and maybe you have given it to me already, but I want to emphasize, and in response to my specific question, with the background of doubt that I just gave you, you feel that it is really going to be able to get the job done so that we know that there is not lots of duplication, and that the goal that Congress seeks is going to be accomplished?

Dr. Wyngaarden. Yes, Senator Grassley. My opinion is that we have adequate mechanisms for coordination at multiple levels, at the Department level, at the institute level, and at the interinstitute level, at the interscientist level, and that all of these are ongoing and receive our serious and continued attention.

Senator **Grassley**. I will be glad to let you answer but let me ask further, and you can comment on both points.

You would say that there is a track record of the months of operation of this task force, that there is a minimum of bureaucratic infighting and that sort of thing, or you would really make me happy if you would say that there is no evidence of any, and I know of no evidence of any.

Dr. **Wyngaarden**. I think there is just a healthy, normal competition of each group wanting to do a little better than the other, but the coordination between them is superb.

Dr. **Macdonald**. I just wanted to respond to Senator D'Amato and say that——

Senator **D'Amato**. The more I look at this thing, the more upset I get. Do you really have coordination over this? I do not think you do.

Dr. **Macdonald**. Let me responsed, if I may, Senator.

The first place that coordination happens is that the applications for grants that come in to the Public Health Service are not assigned to NIMH or NIA on the basis of what the grantee wants. They go through one central group at NIH which decides whether it is more appropriately an NIMH oriented application which might have depression, as it subject which would end up in our Institute.

Other grants will end up in the Neurology Institute. Some of them may be referred to multiple institutes if appropriate, but they all go through that same process.

Some of these smaller grants that you have noted are grants to get new investigators into the field to initiate an expansion of the people who are involved in research, and some of the smaller ones may be for relatively less expensive types of projects, such as interviewing families, collating data, or editing conference proceedings.

The task force meets regularly. Dr. Gene Cohen, of our agency and who is sitting directly behind me, is the executive secretary for the task force. He assures me that he is on the phone frequently about matters of the task force.

Senator **D'Amato**. Do you have anything better to coordinate these efforts?

Dr. **Macdonald**. Well, in your comment today, you said you wanted to have somebody with power coordinating this effort, and I believe that we have that—Dr. Edward Brandt, the Assistant Secretary, has more power to do that than any of us that work for him.

Senator **D'Amato**. You mean from HHS?

Dr. **Macdonald**. He is the head of the entire U.S. Public Health Service. He is Dr. Wyngaarden's boss and my boss.

Senator **D'Amato**. What is his title?

Dr. **Macdonald**. He is the Assistant Secretary for Health.

Senator **D'Amato**. You think he can coordinate this effort? Come on. It should never be up that high. I think you have to take the people in the battle line, take the institute itself to coordinate this thing and see to it that it is not a kind of effort that you are going to respond to my pressure or somebody else's pressure in terms of saying, "Why isn't one here or one there?" "Why don't we put more money in this place and that place?"

It looks to me like the "old boy" network. We all know about it. No one wants to say that it exists in scientific endeavors of this kind of magnitude or this importance, but I would like to see to it that you get the kind of flexibility to do what must be done. You know, we are talking about turf. Senator Grassley mentioned it. I am concerned about it. Did you see the legislation I introduced?

Dr. WYNGAARDEN. Yes, sir.

Senator D'AMATO. What do you think about it?

Dr. WYNGAARDEN. I think it speaks to a very important need, but I submit, Senator, that I think we have taken that issue to heart for years, and I think we are doing it.

Senator D'AMATO. You mean it is not necessary?

Dr. WYNGAARDEN. In my judgment, no, sir. I think we are doing it.

Senator D'AMATO. You do not want anybody rocking the boat?

Dr. WYNGAARDEN. We like to have the boat rocked. That is not a problem.

Senator D'AMATO. Really? You mean you like giving all of these grants to all of these promising young guys all over the place and say, "Well, we gave him $10,000 because we want to get him into the area"? I think that is wrong.

Senator METZENBAUM. May I just interject, Mr. Chairman?

Senator GRASSLEY. Yes.

Senator METZENBAUM. I do not know if carrying this on is advantageous, since we want to hear the rest of the panelists, but I do want to say that I think Senator D'Amato has touched upon a concern of every Member of Congress, and that is we have the authority to authorize the spending of money, and we fight to get *$x* million for you to put out for research grants.

Now, the optimum would be if we could say: OK, here is $3.5 million, here is $1 billion for cancer, here is whatever you need, and you come back and you say, "Here is the answer." That would be the optimum.

The worst case is that you just keep throwing money out, and there is no coordination and, frankly, maybe even some question as to whether anybody pays much attention to some of the research results that are paid for at anywhere from $7,000 to $500,000 or better, whatever the case is.

I think that we would have gained something if we send you a message and say that there are many of us in Congress to doubt that we are getting our money's worth, and we are willing to provide the money, but at some point Senator D'Amato and others of us will be saying: look, you are kidding us. You are just throwing money out on the basis of who is on the review panel and who knows whom, and sometimes there is even some interbreeding.

What we would like to know is what have you done after you spent $500,000 or $200,000. Has it been a total waste? Maybe there would be some value if we were to require the NIH to give us an annual report of every grant that they have made and what the results were and what, if anything, came of it that had a positive value, that had no value, or that in some instances may have even had a negative value.

I think that Senator D'Amato's questioning is very valuable in telling you that we are sort of frustrated at times and that we would like to get I guess it is called more bang for the buck or more real research, more results. We know, on the other hand, that merely putting money up does not assure the fact that some researcher is going to come up with the answer because research does not work that way. You just cannot say we are going to have the result if we spend the money, but I do think there is a very strong message in what Senator D'Amato is saying, and I think he reflects the views of many of us in Congress.

Senator **Pressler**. Let me just say very briefly, I am fighting the battle of committees here this morning, trying to vote by proxy here and there and be in four different places. I have to leave, but let me join in those remarks, but also to say that it is always hard for Congress to appropriate money for research because good research has to be innovative and sometimes good research is high risk research, and when you start analyzing research, some that has led to providing links did not appear that it would in the first place.

But somehow with this business of Alzheimer's, we have reached a point where this new task force, is it just going to gather information or is it going to lead a coordinated effort to conquer Alzheimer's disease? Do we almost need an Alzheimer's czar who is going to oversee this research?

Maybe I am partially guilty, having requested that OTA do kind of a study of how this is being coordinated. Maybe we should redefine that study to see if we cannot be sure that all of this is related somehow. That is the frustration, but I am going to have to leave, and I apologize, and I thank my colleagues for letting me interject here.

But is the task force just going to gather information or is it going to actually lead a coordinated effort to conquer Alzheimer's disease? A lot of these Alzheimer's support groups, and they are a group of people in a town who have relatives or spouses, I speak to them I say, "Well, we are making progress. What is going to happen? Who is the kind of head of this? Well, there is a little research here and a little there."

Senator **Grassley**. I think, Larry, that the point you raise is the center of our discussion here, and I think that one or two of the gentlemen have tried to satisfy us that that is their direction, that that is their intent, that they have even accomplished some of that to this point.

On the other hand, part of the reason we are having oversight hearings and why the Appropriation Subcommittees of the House and Senate will have hearings, as well, is to see that that gets done. I think we want to leave the message that that was our original intent. That is what we hope to accomplish now. We want an update on those sorts of things, and we are going to be monitoring that for many months into the future to see that that is being done.

I think that some evidence of that is the extent to which a task force does, in a sense, rock the boat, as Senator D'Amato says. If everybody is happy with the way things are going, you know, that might be evidence that there is not enough coordination going on.

I do not say that controversy is a worthy end in itself, but some amount of controversy might be an indication that proper coordination is going on.

You did not have a question, did you? You just had a statement.

Senator **Pressler**. That is right, and I am going to have to leave.

Senator **Grassley**. I would like to then get back on track. Dr. Macdonald, I believe you were not done. As I was coming in, you were being questioned. I would ask you to complete, and then we will go to Dr. Olsen, and in the process of your commenting, Dr. Olsen, in your summary, if you are not covering it, I would like to have you address a little bit this coordination issue because the Veteran's Administration is involved, as well, and as veterans are getting older, you are going to have an increasing problem. You already have an increasing problem within your agency, and you are going to be seeing more of this disease, of people coming to your hospitals.

Then we will go on to Dr. Davis, and if we have time, we will go back to questioning.

So would you finish, Dr. Macdonald?

Dr. **Macdonald**. Yes, sir, I will just make a comment and quit.

One of the things in Dr. Wyngaarden's testimony that I found so interesting was the number of leads that have turned up in the very recent past as a result of research. We are currently talking about a toxic cause or slow virus clause or something to do with acetylcholine or other neurotransmitters, and in response to Senator Metzenbaum, if you are going to list the negatives, it should be noted that a lot of those leads are not going to work out. That is the way research goes.

There is a certain amount of turf battle involved in deciding do we put our money into the neurotransmitter area or do we study depression in the elderly, and I think the answer is that all of those leads need to be investigated, and each agency has a little different vested interest in doing the research it feels appropriate and promising.

We for example, are more interested in depression and the family issues than the NIH institutes.

The committee is working, as far as we are concerned, in a very close, coordinated basis, and I certainly hear what all of you say, and I know we will continue to work on that.

That is really all I have to say unless there are any questions.

[The prepared statement of Mr. Macdonald and responses to questions for Mr. Macdonald and Mr. Wyngaarden follow:]

DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service

Alcohol, Drug Abuse, and
Mental Health Administration
Rockville MD 20857

STATEMENT

DONALD IAN MACDONALD, M.D.

ADMINISTRATOR

ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION

before the

SUBCOMMITTEE ON AGING

COMMITTEE ON LABOR AND HUMAN RESOURCES

UNITED STATES SENATE

October 2, 1984

I am pleased to testify along with Dr. Wyngaarden before the Subcommittee on Aging of the Committee on Labor and Human Resources.

Research on Alzheimer's Disease is one of the highest priorities of Secretary Heckler. She announced the establishment of a departmental Task Force on Alzheimer's Disease just prior to this Subcommittee's initial hearings on Alzheimer's Disease in April 1983. The Assistant Secretary for Health, Dr. Edward N. Brandt, Jr., has chaired the Task Force.

On September 20th, Secretary Heckler released the report of the Alzheimer's Task Force. This report represents the first comprehensive strategy for our research offensive against Alzheimer's Disease. It includes recommendations for the full spectrum of Alzheimer's research.

In developing this report, the HHS Task Force has carried out the most comprehensive review ever undertaken in the Alzheimer's field. The report outlines biomedical research goals. It defines training needs for health care professionals. It calls for better information for families and practitioners. And it identifies the need to develop new approaches in providing care for the nation's 2 million Alzheimer's victims.

The report represents the work of scientists both within government and from hospitals and universities across the country. It provides, for the first time, broad scientific consensus on the most promising areas for Alzheimer's research.

This report will help to speed new findings from the laboratory to the practitioner, and it can help bring victory more quickly over the pain and heartbreak of Alzheimer's Disease.

The Secretary was especially pleased that this report has concentrated on the needs of families. Families are the primary care-givers for Alzheimer's patients. And the family falls victim, just as surely as the patient, when Alzheimer's closes its slow, relentless grip on a loved one.

The Department will initiate several new steps to help families in caring for Alzheimer's patients:

First, HHS will convene a special conference in Washington next spring for Alzheimer's families and organizations which serve those families. This conference will review research findings and discuss treatment and care for Alzheimer's patients. At the conference we intend to continue to learn from families and family-oriented associations about their experiences and their needs.

Second, HHS will launch a new initiative on respite care. Respite care is any service which temporarily relieves a person or a family providing home care for a chronically impaired person. Under the initiative, we can better coordinate existing and future respite care studies and demonstration projects throughout HHS. The Department will work with private, volunteer and community groups in promoting respite care services.

Third, HHS is developing new informational materials for distribution to millions of families and practitioners of Alzheimer's patients. In particular, we are preparing two new pamphlets -- one for practitioners and the other for families -- to be ready this fall.

These pamphlets will help families learn how others have coped when Alzheimer's strikes a family member. They will also help keep practitioners up-to-date in providing treatment.

In addition to these steps, the Public Health Service this fall will add five special Research and Training Centers for Alzheimer's Disease, bringing together many of our best scientists at leading research institutions.

HHS has already issued new instructions to our Medicare contractors to correct an inequity that has affected some Alzheimer's patients. In a limited number of Alzheimer's cases, a $250 limit has been inappropriately placed on physicians' services. The new instruction will clarify that except for psychotherapy, Alzheimer's and related disorders should be considered primarily a degenerative brain disorder, and therefore physicians' medical treatments would not be subject to the $250 limit. This will ensure equal treatment for all Alzheimer's patients and correct an unintended inequity for those diagnosed with Alzheimer's Disease.

The Task Force has made significant progress in addressing the mandate set by the Secretary to: (1) coordinate the intensive research already being done within the Public Health Service on Alzheimer's; (2) pinpoint the most promising avenues for future research; (3) act as the vehicle to translate research findings into policy, programs and practical means for improving the quality of life for older Americans; and, (4) develop an active, ongoing mechanism for sharing information with other program heads in the Federal agencies which serve the elderly, such as HCFA and the Administration on Aging. I have copies of the report for the Committee and ask that it be included as part of the record.

The National Institute of Mental Health, one of the three Institutes within the Alcohol, Drug Abuse, and Mental Health Administration, is a member of this Task Force, and served as executive secretary to it. I am proud of the role NIMH is playing in stimulating and supporting scientific and public activities related to Alzheimer's disease. We are acutely aware, Mr. Chairman, of the enormous personal and social disruption caused by this dread disease.

Simultaneously, we are encouraged by recent scientific information which suggests that this disorder does not have to be perceived with the stark and utter pessimism that heretofore has characterized it.

Much remains unknown, but the support for scientific efforts has begun to prove fruitful. Overall, PHS research on Alzheimer's disease has doubled in the 3 years since 1981. The NIMH investment in research on aging has quadrupled in the past seven years. When added to our major commitment to the neurosciences, the combined effort is significant.

In my few minutes today, I would like to highlight current research activities sponsored by the NIMH and focused on Alzheimer's Disease. I would also like to focus on some new directions, and on various barriers to progress in this area.

There are major developments both in research focused on Alzheimer's Disease as well as on mental health research generally, which have application to Alzheimer's Disease.

One such development is the use of positron emission tomography, or the PET scanner. The use of radioisotope tagged 2-deoxyglucose,--so critical to use of the pet scanner--was developed by Dr. Louis Sokoloff of NIMH. For this work he received the Lasker Award.

The PET Scanner, a noninvasive brain imaging technique is a dramatic advance enabling us to study systematically the structure and operation of the brain. Within the Public Health Service, and at universities around the country, this technique is now being used to investigate various psychiatric disorders, including Alzheimer's Disease. Scientists, for example, at New York University, Brookhaven National Laboratories, and UCLA, are working with this new technology.

In neuroscience, progress is being made in our understanding of the plasticity of brain tissue--that is, its capacity for growth, for change, and for repair of the different functions of the various components of the brain. One of our grantees, Roger Sperry of the California Institute of Technology, recently received the Nobel Prize for work in this area. Another advance in neuroscience research is in our increasing capacity to understand, at a molecular level, the genetic functions central to the determination of human behavior and human disease.

These developments promise increasing understanding of issues related to many diseases, including Alzheimer's disease. With regard to Alzheimer's specifically, exciting findings have emerged involving the so-called cholinergic hypothesis.

In the brain of persons with Alzheimer's Disease a deficiency of acetylcholine, one of the chemical messengers that allows information to travel between the neurons, has been identified by researchers at Albert Einstein Medical College. Until recently, the source of acetylcholine to the cerebral cortex remained unclear. In a series of dramatic studies scientists at Johns Hopkins University have now identified an anatomical site in the brain significantly involved in the regulation of acetylcholine. This site is called the nucleus basalis of the basal forebrain. Examination of the brains of individuals who died with Alzheimer's Disease reveals that acetylcholinereleasing neurons in the nucleus basalis had died off selectively.

A second area of productive work is focused on the problem of establishing a correct clinical diagnosis. At present this can only be formulated on the basis of exclusionary criteria. That is, the diagnosis can only be made when all other possible causes of cognitive impairment have been ruled out. A variety of important studies are presently underway to discover new biological or behavioral markers capable of reliably indicating the presence of this disease. In the absence of a biological marker, clinicians have convened under the auspices of the Task Force to develop a refined set of diagnostic criteria. These criteria have recently been published in the prestigious journal Neurology in the July 1984 issue.

Studies of the electrophysiologic changes associated with the progressive dementing process are underway at the University of Washington and at Stanford University. In an exciting new approach which could potentially identify molecular defects associated with Alzheimer's Disease, scientists at the University of Southern California are examining brain tissue for specific features by using monoclonal antibodies.

Our scientists are also working to clarify further the differential diagnosis between severe depression and Alzheimer's disease, commonly acknowledged to be one of the most difficult and problematic in geriatric medicine. This issue constitutes a significant problem not only because depression is often an early correlate of Alzheimer's Disease, but also because it may closely simulate a dementing syndrome. Important work is going on in this area at the Albert Einstein College of Medicine in evaluating the presence, nature and treatment of mood disorder in Alzheimer's patients, and at the University of Washington, in assessing whether Alzheimer's victims with mood disorders differ with respect to response to the tricyclic antidepressants.

While we work toward an understanding of the cause and an effective treatment, we are painfully aware of the plight of present day Alzheimer's victims of the disorder which includes both the patients themselves and their families.

The significant contribution of the family to the Alzheimer's patient has been systematically documented in PHS-supported studies at the Philadelphia Geriatric Center and at the Benjamin Rose Institute in Cleveland. These have also documented severe stress and the enormous burden that accompanies such care. Family members, when studied at the University of Washington and at the Texas Research Institute of Mental Sciences in Houston, have manifested a variety of disturbances, including clinical depression. So often one finds a person with Alzheimer's Disease and a related and close family member also suffering a major psychiatric disorder themselves.

Studies supported by PHS at the University of Southern California and the University of California at Los Angeles are exploring interventions to prevent these negative consequences for the family.

It is clear that research in Alzheimer's Disease requires a multi-faceted approach. We need to continue vigorously and to expand our search for the cause of Alzheimer's Disease; we need better data on its epidemiology; we need more specific diagnostic tests for both earlier and more accurate diagnosis of Alzheimer's Disease; we need more effective drug and behavioral intervention treatments; and we need to increase our understanding of how to help the families of those with this serious disorder. We are strengthening our initiatives in each of these important research areas in a coordinated effort with other Federal programs, and especially with the National Institutes of Health.

In an effort to meet these needs and to increase our knowledge base, NIMH has developed a new program of support, Clinical Research Centers on the Psychopathology of the Elderly. This program, with grants totaling $1 million, weaves together clinical and basic research in the mental disorders of the elderly. For example, the Center on Alzheimer's Disease at Stanford University headed by Dr. Jerome Yesavage, is attempting to identify areas of "excess disability" in Alzheimer's Disease patients which may be alleviated in order to improve functional status. A second Center on Alzheimer's Disease located at the University of Washington in Seattle under the direction of Dr. Burton Reifler is actively developing refinements in the diagnosis and staging of the disease.

We have a concern that high quality information be made available to professional and public audiences as quickly and effectively as possible. We are pleased by the NIMH partnership with the pharmaceutical industry to develop a series of physician guides to help accomplish this purpose. With the assistance of the pharmaceutical industry, these guides have been distributed to over 150,000 primary care physicians in the United States. The first three, focusing on the proper use of psychotherapeutic drugs, on depression, and on sleep disorders, have already been distributed and we are currently developing others. More research oriented material in the series includes books on assessment, and on experimental treatments for Alzheimer's Disease.

This NIMH information has been distributed and reproduced widely across the Nation and I have brought copies of some of these publications with me for the record.

In closing, I would also like to emphasize the collegial and collaborative relationships we have had with the other National research institutes. Currently, research grant applications can be and are assigned jointly to as many institutes as appropriate so that each may consider the project for funding.

Mr. Chairman, I thank you for the opportunity for testifying on Agency efforts in the area of Alzheimer's Disease. I shall be pleased to answer any questions that you and the members of the subcommittee may have.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of the Secretary

Washington, D.C. 20201

The Honorable Charles E. Grassley
Chairman, Subcommittee on Aging
Committee on Labor and Human Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Enclosed are the answers to the several follow-up questions on Alzheimer's Disease research that were sent to Dr. James Wyngaarden, Director, National Institutes of Health and Dr. Donald Mac Donald, Administrator, Alcohol, Drug Abuse and Mental Health Administration.

If we can be of further assistance, please let me know.

Sincerely,

Cynthia C. Root
Deputy Assistant Secretary
for Legislation (Health)

QUESTIONS FROM SENATOR GRASSLEY TO DR. WYNGAARDEN AND DR. MCDONALD

1. The Report of the Secretary's Task Force on Alzheimer's Disease has done a comprehensive job of reviewing research underway in the Department of Health and Human Services and the Veterans Administration, and of identifying future lines of research, education and training on Alzheimer's Disease.

QUESTION
Where do we go from here? Secretary Heckler pointed out in her introductory statement to the Report that "it presents a detailed plan for the future". Does this mean that the Department is committed to supporting the various lines of research outlined in the Report?

ANSWER
The Department of Health and Human Services (HHS) is deeply committed to supporting the research directions outlined in the Report of the Secretary's Task Force on Alzheimer's Disease and has already actively begun to do so. As new research opportunities evolve, we shall take advantage of them so that each important new research lead is actively investigated.

QUESTION
If yes, does that mean that the various agencies responsible for sponsoring research in these various areas will call for proposals on the various items defined in the Report as necessary future research?

ANSWER
At the current time, Alzheimer's Disease — its etiology and natural history, treatment, and prevention — is an extremely active research focus. Many talented and committed scientists are conducting basic and clinical research on the many aspects of Alzheimer's Disease under HHS sponsorship. The amount of research proposed in this area has increased greatly in the past year and we expect this trend to continue. In addition, some of the agencies are planning to issue Request for Applications and Requests for Proposals concerning specific areas outlined in the Report.

QUESTION
When will we see this begin to happen? Do you have plans to inform the Congress and the public about the results of this agency activity?

ANSWER
Research on the areas of Alzheimer's Disease defined by the Report of the Task Force is now proceeding and will continue to grow. Research breakthroughs are reported at professional meetings and in the scientific literature. We inform the public of new findings as well as provide general information on the disease through special publications, pamphlets, and brochures published and disseminated by the National Institute of Neurological and Communicative Disorders and Stroke (NINCDS), the National Institute on Aging (NIA), and the National Institute of Mental Health (NIMH). Many publications are also distributed through such organizations as the American Association of Retired Persons (AARP) and the Alzheimer's Disease and Related Disorders Association (ADRDA).

Scientific breakthroughs are communicated to Congress when the directors of the national research institutes conducting and supporting research related to Alzheimer's disease appear before the various committees. We also respond to many Congressional requests for specific information related to Alzheimer's Disease research.

2. Now, one can argue that if these agencies do begin to sponsor projects in the areas identified in the Report that the Task Force through its Report therefore "coordinates" the Departmental effort in the Alzheimer's area.

QUESTION
Is this in fact what the Report meant when it stated in its introduction that "Task Force members have coordinated ongoing research on Alzheimer's Disease in the Department...?"

ANSWER
The coordination of the Alzheimer's Disease research supported by HHS is an ongoing process. The institutes within the Public Health Service (PHS) conducting research related to this disease closely integrate their activities and project portfolios. Staff of various programs frequently meet and plan joint activities such as conferences. Often, program announcements are issued jointly. For instance, the Centers program developed by NIA involved a planning group which included program staff from NINCDS and NIMH. The intent of the Centers program is to include projects supported by all three institutes as part of the Centers activity. The projects supported by the other institutes would thus benefit from the reduced cost of conducting research. That is, projects supported by NINCDS and NIMH will be part of the Centers and thus be able to use the core facilities being established by the Centers.

The process of developing the Task Force Report involved all of the HHS agencies that conduct research or provide services related to the disease. There was extensive input from scientific experts in academia and the private sector as well as those within the Department.

3. QUESTION
Does the Department intend to maintain the Task Force in being, and, if so, what will its continuing task be?

ANSWER
Yes, the Secretary intends to maintain the Task Force. It's major focus will continue to be to guide the progress and coordinate research efforts; as well as define new directions in the nine categories of recommendations listed in the Report.

4. QUESTION
Does the Department plan any specific follow-up to the Task Force's Report - say in six months or a year?

ANSWER
The Task Force has already asked HHS agencies to provide information on their activities related to Alzheimer's Disease for fiscal year 1984. We assume that this updating will be done annually as long as this need exists.

5. Secretary Heckler, when she appeared before this Committee in May of last year, said that the Department had "reached outside the precincts of government for allies in the private sector". And you mentioned some examples of private sector-federal government cooperation in your presentations. I have two questions as a follow-up to this:

QUESTION
First, do you have any idea of the magnitude of non-federally supported research on Alzheimer's Disease, research which might be supported by private foundations, for instance? Are we talking by and large about Federal efforts?

ANSWER
A large portion of non-federally supported research comes from the Alzheimer's Disease and Related Disorders Association (ADRDA), which has a small but growing grants program and funds a limited number of private projects to get new investigators started in this area of research.

Other multipurpose private foundations have begun to explore the possibility of funding research related to Alzheimer's Disease and are actively discussing possible plans with PHS. There are also a number of other private foundations, such as the Robert Wood Johnson and Beverely Foundations, as well as other organizations which have sponsored conferences and workshops in this area.

QUESTION
Second, what plans does the Department have to continue such public-private collaboration?

ANSWER
The Department will continue to encourage such public-private collaboration and several activities are already being planned. For instance, NIA, in collaboration with the American Association of Retired Persons (AARP), planned a workshop on the Diagnosis of Alzheimer's Disease. In the near future, also in collaboration with the AARP, NIA will sponsor a workshop on the role of aluminum as an environmental toxin involved in the etiology of Alzheimer's Disease. Communications among the PHS Institutes and various foundations and organizations, such as the Robert Wood Johnson Foundation, the Brookdale Foundation, and the Hill Haven Foundation are ongoing and further collaborative efforts are planned.

6. The Task Force Report stated that the World Health Organization has made the epidemiology and diagnosis of Alzheimer's Disease one of its major priorities in the next decade.

QUESTION
Is the Department cooperating in this effort, and, if so, can you tell us a bit about that?

ANSWER
Some examples of the Department's active involvement in international efforts related to Alzheimer's Disease include the following. NINCDS is conducting an international epidemiological study of neurological disorders, in general, including dementia specificially. To study international variations in the epidemiology of Alzheimer's Disease, a uniform methodology and a protocol to estimate mortality and morbidity of Alzheimer's Disease and other dementias in several population groups are now being applied in the United States and in a multicenter study in Italy. Many other countries have recently requested the protocol.

Also, NIA is designated as one of the cooperating centers for the World Health Organization with respect to the epidemiology and diagnosis of Alzheimer's Disease and has plans underway to hold a major international conference on this issue in July 1985. A number of American scientists (including scientists from various agencies of the Department) as well as European scientists will be invited to discussions of international standards for the assessment and evaluation of Alzheimer's Disease.

The World Federation of Neurology, a nongovernmental organization affiliated with the World Health Organization, has a Research Group on Dementia which will sponsor in September 1985 a main theme symposium on dementia research, focusing on Alzheimer's Disease. Scientists from PHS will participate in this conference.

The Secretary's Task Force worked with ADRA and nongovernmental experts to produce a set of clinical criteria for the research diagnosis of Alzheimer's Disease. These criteria were published and sent to representatives of the General Committee of European Economic Community-Concerted Action Committee on Biology (EURAGE). We have been told that EURAGE will work to establish these criteria for use in European research activities.

7. QUESTION

Are the Alzheimer's support groups across the country helping in the research efforts? For instance, it was mentioned in the Task Force Report that the support groups might be able to help researchers secure brain tissue from deceased victims of Alzheimer's Disease. Has there been any effort to regularize relations between the support groups and the Department and to develop an approach to this problem?

ANSWER

The Alzheimer's Disease and Related Disorders Associations (ADRDA) is actively involved with Alzheimer's Disease research efforts and maintains a close working relationship with PHS. Further, the president of ADRDA is a member of the National Neurological, and Communicative Disorders and Stroke Advisory Council. ADRDA has been instrumental in organizing a network to obtain and process brain tissue from deceased Alzheimer's disease victims. The local support groups for Alzheimer's disease have worked with PHS and other scientists to assess the rapid removal of brain tissue within the required timeframe and the referral to the appropriate tissue bank. In addition, ADRDA participated with the Task Force, PHS, and other scientists to develop the widely distributed clinical criteria for the diagnosis of Alzheimer's disease.

Furthermore, the guidelines for the five Alzheimer's Disease Centers established by NIA have specific requirements that each Center establish formal relations with Alzheimer's disease support groups, and provide information to such groups concerning the latest findings in diagnosis and treatment of Alzheimer's disease. In addition, each Center will establish a brain bank where material will be collected and distributed for study by various scientists. The effort will be undertaken in cooperation with various support groups.

8. At least two of the chapters of the Task Force Report mentioned that special research centers on Alzheimer's could make a real contribution to progress against the disease. And Dr. MacDonald noted that the Public Health Service will add five special research and training centers for Alzheimer's Disease.

QUESTION

Can you tell us what kind of work these centers will do? Are they to be, for instance, scientific research centers, or will they do research and systems of care also?

ANSWER
The specific objectives of these Centers are threefold. First, to conduct biomedical and behavioral research on all aspects of Alzheimer's Disease, including diagnosis, etiology, prevention, and treatment. Second, to provide an environment where training of future scientists and health care providers can be conducted, and to play a coordinating role for such activity. And third, to educate the professional community as well as the lay community.

Each Center will conduct special continuing education seminars for physicians and other health care providers concerning Alzheimer's Disease, as well as seminars designed for lay audiences. The objective of the lay seminars are to inform the public and family members about the latest advances in diagnosis and treatment. In addition, because of the effort being expended at these Centers to establish patient registries, the Centers will be able to launch clinical trials of new treatments in a more efficacious manner than is possible at the present time.

9. QUESTION
You mentioned correction of an inequity in administration of Medicare benefits which has affected Alzheimer's patients. Can you briefly summarize for our record what Medicare benefits an Alzheimer's patients would be eligible for?

ANSWER
The actual recommendation of the Task Force is stated as follows:

"Current Medicare statute limits medically appropriate physician services provided outside of the hospital setting for patients with Alzheimer's Disease when coded as a mental disorder. The Department should clarify that, except for psychotherapy, physician treatment services for patients with Alzheimer's Disease and related disorders are not subject to the $250 limitation. In other words, in determining whether services for these patients are subject to the limit, the nature of the physician's service is the deciding factor, not the diagnostic code. Therefore, physician treatment services provided outside the hospital setting for patients with Alzheimer's Disease and related disorders coded 290.X (in DSM-III and ICD-9) should be reimbursed in the same manner as services for Alzheimer's Disease coded 331 (ICD-9)." The intent is then, on an outpatient basis, to provide adequate coverage for diagnosis and for office visits for follow-up care.

10. QUESTION
Do you have any idea of how much of the community mental health center (CMHC) network's elderly case load involves work related to Alzheimer's Disease?

ANSWER
A substantial and growing amount of attention by CMHCs to the elderly is being focused on the specific problems of Alzheimer's Disease. Extensive efforts in the area of technical assistance are being directed to State offices on mental health, State offices on aging, CMHCs and area agencies on aging, in order to improve the community mental health focus on Alzheimer's Disease for patients with the disorder and their families.

Senator GRASSLEY. Now we will go to Dr. Olsen.

Dr. OLSEN. Thank you. Mr. Chairman, members of the committee, my name is Dr. Edwin J. Olsen. I am the director of the Development and Management Service, Office of Geriatrics and Extended Care in the Department of Medicine and Surgery with the Veterans' Administration. I am currently on a sabbatical leave to participate as a Harvard Foundation scholar in geriatric medicine in the division on aging at the Harvard Medical School.

I have had the pleasure of serving as the Veterans' Administration's representative to Secretary Heckler's departmental task force on Alzheimer's disease, and it is in that capacity that I am pleased to be here today.

Due to the short timeframe from the invitation to attend this hearing today, it was not possible to prepare an agencywide report. However, I do have some comments that I will make regarding the VA, and as a panel member, answer any questions.

The Veterans' Administration has recognized, as reported in the recent publication, "Caring for the Older Veteran," the upcoming challenge of an exponentially expanding population of elderly veterans, and with that expansion, an increased number of Alzheimer's victims and their families.

The projected statistics have been well published, but I would like to highlight just a few. In 1980 there were a total of 28.6 million veterans, 3 million of them over the age 65, representing 10.5 percent of the veteran population. It is projected that in the year 2000 we will have a total of 24.3 million veterans, with 9 million over the age of 65, representing 36 percent of the total veteran population.

We also know that a significant proportion of veterans in long-term-care facilities have dementia as either their primary or secondary diagnoses, which is comparable to the private sector.

Specifically we know that in 1980 the prevalence of dementia in the veteran population was around 200,000. It is projected by the year 2000 the prevalence of dementia in the veteran population will be over 500,000.

In 1980 the incidence of dementia in veterans was approximately 50,000 new cases per year. In the year 2000 the incidence is projected to be almost 150,000 new cases per year.

In research in fiscal year 1983, the Veterans' Administration funded over $600,000 for Alzheimer's research. In the area of dementia as a whole, it funded approximately $2 million for research.

It is also worthy to note that VA researchers have competed for non-VA funding both at the NIA and at the NIMH, and have received over $500,000.

In education, in fiscal year 1984 the Veterans' Administration had approximately $7 million earmarked for geriatrics and gerontology. We have educational fellowships, residencies and allied health training.

As you know, we have 10 geriatric research education and clinical centers [GRECC's] around the country. Four of those held major conferences in Alzheimer's disease during the past year, and those are Palo Alto, Seattle, Minneapolis, and the Boston GRECC's.

The Veterans' Administration in its education program has regional medical education centers, CHEP's, which are cooperative health education programs.

Senator **Metzenbaum**. Dr. Olsen, I do not want to interrupt you, but I wonder if we could prevail upon you just to talk to us and tell us not a recitation of the number of conferences. Just tell us what is the Veterans' Administration's approach to the whole problem of Alzheimer's, what you are doing, what you are not doing, what we can do to help, because it seems to me you are just sort of giving us a staff report, and we think there is an evaluative judgment that we need to make as to what should the VA be doing vis-a-vis all of the veterans who are going to become victims of Alzheimer's, some of which are probably not service-connected, some of which are people who ought to be in nursing homes. I would sort of like some guidance in the thinking on your part. If you would not consider that an imposition, I would appreciate it.

Dr. **Olsen**. Again, to speak for the whole agency, I am not prepared to do that. I could give you some remarks as an individual working in the agency.

Senator **Metzenbaum**. Why don't you do that? Give us some remarks as an individual, not policy, but just tell us what you think. We are really trying to learn and not just get a pro forma report. Do you mind, Mr. Chairman?

Senator **Grassley**. I think that is fine.

Go ahead.

Dr. **Olsen**. I can tell you that within the agency over the last year and a half there has been a tremendous amount of effort on the part of everyone looking at the problems we are going to confront, and I have given you the statistics, and I know that you are well aware of them.

We are very involved in care for the elderly veteran. There are restrictions on eligibility, on the numbers of veterans that we can care for. There are restrictions on the funding that we have, the amount of facilities, the number of personnel we have. I think we are always looking for ways to better utilize the funding and the staff that we have.

We have come up with some alternative programs of care which are noninstitutional, such as the hospital based home care program, the geriatric evaluation units, the adult day health care centers, and again, I may be sounding like I am just spouting information, but I think we are actively looking into these problems and looking at how we can best spend the money that is allocated.

We could always ask for more, and we do, but we are looking at ways to best spend the money that we have.

Senator **Metzenbaum**. Did Congress authorize the establishment of nursing home facilities or hospital care facilities on Veterans' Administration grounds or authorize the Veterans' Administration to subcontract with the private sector for nursing home care, whether it be nonprofit or profit? It certainly would be cheaper than keeping Alzheimer's patients in Veterans' Administration hospitals.

Dr. **Olsen**. I do not have the numbers to answer that question. I would be happy to go back and prepare an answer for you. My impression is it has to be a combination of efforts.

Senator **Metzenbaum**. I think that that is rather basic to the whole question. One of the questions is: How far should the Veterans' Administration be called upon to provide care for non-service-connected Alzheimer's disabilities?

Second, to the extent that the VA is involved with respect to Alzheimer's patients, should they be treated in VA hospitals or should they be treated in nursing homes?

Next question, should those nursing homes be operated by the Government and on Government premises, or would it be more efficient to have a subcontracting arrangement?

I think these are some of the questions that we ought to have answered and some recommendations from the VA as we try to deal with this problem.

As you know, I put an amendment on one of the Veterans' Administration bills, and I am certain there will be more legislation forthcoming in this area vis-a-vis the VA and Alzheimer's.

[The following was received for the record:]

(Subsequently, the Veterans Administration
furnished the following information:)

In 1924, the 68th Congress provided for hospitalization to veterans of all wars, ". . . without regard to the nature or origin of their disabilities. . . . ." The provision of medical care for needed nonservice-connected veterans was reaffirmed in 1930 by the 73rd Congress which consolidated veterans' activities under one organization, the Veterans' Administration. In 1962, Public Law 87-583 authorized hospital and medical care for peacetime veterans suffering from noncompensable service-connected disabilities. Subsequently, eligibility for hospital care has been expanded and clarified by numerous laws.

In 1964, Public Law 88-450 authorized the provision of nursing home care to veterans by the VA in three ways. First, the VA was authorized to establish and operate VA facilities for furnishing nursing home care. Second, the VA was authorized to transfer any veteran, who has been furnished care in a VA hospital, to any public or private institution which furnishes nursing home care for care at VA expense. Lastly, the VA was authorized to pay States a per diem for each veteran receiving nursing home care in a State home. Subsequently, numerous laws have amended the initial provisions regarding eligibility, per diem rates, etc.

During 1984, of the total of approximately 27,000 veterans provided nursing home care on any one day by the VA, 33 percent received care in VA facilities, 39 percent received care in community facilities at VA expense, and 28 percent received care in State veterans homes with a per diem paid by the VA.

As with many diseases and disabilities, there is no one best place to treat and care for a patient. The appropriate placement in institutional or noninstitutional care depends upon many factors such as the diagnoses, prognosis, stage of the disease, degree of disability, needs of the patient, availability of care providers, etc. In regards to Alzheimer's disease, there is no treatment known that will alter the course of the disease. What is done is to provide support to the patient and family in managing the behavioral and social problems that arise. It is generally held that it is best for the patient to be maintained at home, in a familiar environment or in the least restrictive environment, as long as possible. Most of the initial support measures therefore take place outside the hospital. Alzheimer's dementia is a progressive disease. As the disease progresses, a point is invariably reached when the patient can no longer be maintained at home and needs institutional care.

The VA policy on eligibility for Alzheimer's disease is consistent with that for other illnesses and disabilities. The admission of Alzheimer's patients to VA medical centers is not based solely on diagnosis or stage of disease. In addition to clinical judgment of medical need for admission of eligible veterans, available resources and alternatives are considered.

A veteran with Alzheimer's Disease whose spouse has died and who has few or no other family members to provide care is likely to be admitted at a relatively early stage of the disease. On the other hand, a veteran who has a spouse and family members who can provide care in the home with medical care provided by outpatient treatment at the VA medical center is likely to be admitted at a relatively later stage of the disease. Whether Alzheimer's patients are admitted immediately or placed on a waiting list will also vary from one medical center to another depending upon the availability of an appropriate bed, either hospital, VA nursing home, or community nursing home.

Senator **Grassley**. Proceed, Dr. Olsen.

Dr. **Olsen**. As far as our system of care is concerned, as I mentioned, we have demonstrated and recognized that a continuum of care is very important for the elderly, and that goes all the way from our acute hospital center to our hospital based home care programs, our domiciliary [DOM] programs, nursing home care programs, the adult day health care centers and the geriatric evaluation units.

Outside the agency, the Veterans' Administration has participated in a number of activities. We have participated actively with the NIA on the National Advisory Council. The VA has looked at VA community interaction in a conference sponsored last year at Harvard. Last week the Veterans' Administration cosponsored a conference with the American Health Planning Association on the complex cube of long-term care, addressing many issues related to dementia, and the VA has actively participated in the planning of an upcoming conference, along with other agencies, regarding Alzheimer's disease with the Hill Haven Foundation.

The VA has also entered into early planning discussions with the Administration on Aging about possible future collaborative projects. I think we are not only working very actively within the agency, but also with other Federal and private programs.

Senator **Grassley**. Thank you.

Dr. Davis.

Dr. **Davis**. I had initially planned to supplement my written testimony with some extra scientific testimony here, but I would rather not do that. I think given the thrust of the discussion today, it perhaps would be more profitable for me to discuss with you what our Alzheimer's center will do, how it is administered, how it interacts with the other programs that we receive funding for, and issues of that sort.

Our laboratory receives funding from the National Institute of Aging, the Veterans' Administration, the pharmaceutical companies, as well as now an Alzheimer's Disease Center. The Alzheimer's center that we will be initiating in the next few months has, as been described, core functions that have been very clearly defined for it by the NIA and the program that was adopted by the Health Science Administrators.

Specifically, our Alzheimer's center will spend more than half of its money attempting to conduct autopsies, to find patients, to manage data and to administer the entire Alzheimer's program in our hospital.

In addition, we will embark in five new directions that would otherwise not have been possible without that support. We are going to see whether we cannot devise some tests to facilitate an early diagnosis of Alzheimer's disease. We want to see whether we cannot use existing drugs, drugs that have been marketed, to find out what is the best way to treat some of the agitation and depression that these patients have.

We want to develop a better animal model of Alzheimer's disease, to find out why, for instance, some patients with Alzheimer's seem to have elevated levels of cortisone, what the basis for that is, what it may tell us about diagnosis; and finally, in the laboratory learn something about the electrical activity of that part of the brain that seems to be involved in learning and memory.

Now, in addition, the Alzheimer's center's designated funds for pilot studies, which is a small percentage of the funds. Those in our centers are going to be used to determine whether it is feasible to conduct a study of the heritability of Alzheimer's disease, simply a feasibility study, to find out how this important chemical that we know to be deficient, acetylcholine, may interact with other brain chemicals, and finally to find out how able our Alzheimer's patients are to understand the informed consent process, which underlies a lot of the work that we do.

In our grant, 20 percent of it will go for indirect cost, which is overhead to the university. That is what is called an off-campus rate. An off-campus rate, because my laboratory is at the Bronx Veterans' Administration Hospital and only a small proportion of it will be done at Mount Sinai Hospital, but all of it is, of course, under the umbrella of the Mount Sinai School of Medicine.

None of the funding will go for any teaching program, for any training program. It will all fund, the rest of that 80 percent will all fund applied research in this area.

Other funding sources that my laboratory receives includes a program project grant for the National Institute of Aging. That is a grant that is designed to help us develop a pharmacotherapy for Alzheimer's Disease, a drug therapy that may help us. The drugs that we are working on are all derived from what we know to be this acetylcholine deficiency. Another part of the grant is to help us assess patients, develop scales that can be used generally to assess change in Alzheimer's, and a final aspect of the program project grant is to help us make a diagnosis with biological workers.

The program project grant will interact with the Alzheimer's center in the following way. We will use the Alzheimer's center to greatly expand the number of patients who will be participating in program project grant studies. In addition, the Alzheimer's center will allow new studies, new initiatives to begin.

We receive some smaller grants from the Veteran's Administration. The Veteran's Administration funds what we call a study of the natural history of Alzheimer's disease to learn about the course of the disease. That study will also be greatly facilitated by the Alzheimer's center, which will allow more patients to enter that study.

In addition, the Veteran's Administration is funding——

Senator **Metzenbaum** [presiding]. Let me get something clear. Would you just explain? As I understand it, you are connected both with the Mount Sinai Hospital and the Bronx VA Medical Center. Is the Alzheimer's center at Mount Sinai or at the VA Medical Center?

Dr. **Davis**. It is administered through Mount Sinai Medical School. The medical school has a number of affiliates. The Bronx VA is one. Elmherst Hospital, Beth Israel, and Mount Sinai Hospital are the others. It is the umbrella under which we all serve. Most of it is going to wind up at the Bronx VA. In fact, about 95 percent of it will be at the Bronx VA, but since the school is totally integrated, it is really hard to make those distinctions. Most of the work will be done at the VA.

Senator **Metzenbaum**. Are we talking about your $220,000 grant? Is that the one we are speaking about, or is this another grant?

Dr. **Davis**. The $220,000, which is I think larger than that, is the program project grant that we get from the National Institute on Aging.

Senator **Metzenbaum**. That is the cholinergenic—you pronounce it.

Dr. **Davis**. Right. That is the grant that is listed there as $220,000. It is somewhat more than that.

Senator **Metzenbaum**. And then you receive a new grant now?

Dr. **Davis**. For the Alzheimer's center.

Senator **Metzenbaum**. Which is $700,000?

Dr. **Davis**. Right, and in addition, we have a few smaller VA grants.

Another aspect of the VA grants is that we are trying to develop an animal model of Alzheimer's disease. The VA alone is funding part of that program to see whether we can transplant brain tissue from embryos of animals into an adult rat to see whether the transplant might take, and we can reverse some of the lesion that we put into the adult animal.

Senator **D'Amato**. Doctor, might I pursue that? You are doing this experiment on the brain embryonic materials. Is anybody else doing that?

Dr. **Davis**. Sure. A number of laboratories around the world are doing that.

Senator **D'Amato**. Let me ask you this, and maybe at the risk or jeopardy of your own program. Don't you think that there should be one, two, or three who would conduct a limited number of that specific kind of activity?

Dr. **Davis**. Well, I think that is about all there are.

Senator **D'Amato**. Well, who knows how many are doing this? In other words, you testify to a specific program that they are undertaking, and nobody says that they are going to come out with some answers. How many similar programs are there where they are conducting exactly that kind of activity?

Dr. **Wyngaarden**. Well, that is a researchable question. I do not have the answer with me today, but rarely are scientists doing exactly the same thing, Senator. Even though the methods may be similar, they may be asking very different questions and pursuing different objectives.

Senator **D'Amato**. I was talking specifically about that particular activity.

Dr. **Davis**. I can partially answer that question. The reason I can is because at the conferences that have been held, the investigators who do this work get together. In fact, very recently, Dr. Price, who will testify later, myself, and another group who is doing this work, all sat down and informally decided that I was going to be investigating one part of the brain. Dr. Price is looking at a different part of the brain, and some of the most fundamental techniques have been derived from work that is going on this week in Sweden.

None of us want to replicate, do the same work simultaneously. We are aware of the problems that could arise from that, but I think that it is important to realize that the nature of science is a process by which replication is essential to establishing truth, and there is no way that a single group is going to be able to continue that work without having other centers doing very similar work.

It is the purpose of oversight committees and study sections to make sure that the work that is being funded is of the highest quality and not redundant. I understand the concern that the Senators have today, but my concern as an investigator is almost exactly the opposite, and that is that rather than having to see yet another layer of oversight placed on the work that I do, I am already so encumbered with progress reports, conferences, calls from people wanting to know what I do that I have not enough time to do the really innovative things that have to be done.

Senator D'AMATO. Let me ask you this, and you do not have to answer the question. Do you think that all the people who get these grants, should be getting them?

Dr. DAVIS. My assessment of the field is that we are scrambling for too few dollars. The competition is so cutthroat that the work can often be too conservative. I do not have any problem with the people who are getting the money.

Obviously lots of studies that you see there may not turn out.

Senator D'AMATO. Well, we understand that.

Dr. DAVIS. And conceivably they will not turn out because fundings should have been at a level, say, of $80,000 or $90,000, but because of the restraints that the committee was dealing with, were only funded at levels of $60,000, or $50,000 or $40,000 or $20,000, They can only do a fraction of what they had originally proposed, but that is something that really is not the fault of the investigators nor the NIA or study sections, but rather the appropriation level.

Senator METZENBAUM [presiding]. The chairman had read a letter to the editor in the New York Times, Dr. Peck, indicating that one of the problems is the amount of brain tissue available by reason of autopsies for experiment. Would you care to comment on that?

Dr. DAVIS. Yes, there is a serious problem. As I look at the difficulties that keep us from moving as rapidly as we might want in Alzheimer's research, one is quite clearly that we do not do enough autopsies. If we could spend some time thinking about ways to facilitate the amount of brain material, the number of autopsies that are done on well characterized patients, I think we would do a lot to serve this field.

The second problem is coordinating with nursing homes. The typical nursing home is quite concerned at making any of their residents subject of research. Often, for example, if I would like to transfer people who are in nursing homes to my research units, be they at the VA or at Mount Sinai, they are concerned that when the patients leave the nursing home, that the bed will be unfilled. They will lose their reimbursement, and then they will not be able to accept that resident back again when the research is done.

Senator METZENBAUM. As you well know, there are a number of groups formed throughout the country, families of Alzheimer's patients. Is any effort being made to secure their assistance in helping to obtain brain tissue?

Dr. **Davis**. Absolutely. We work with the president of the New York chapter of the Alzheimer's Disease Research & Related Disease Association, and they are quite aware of these concerns.

Senator **Metzenbaum**. That is in New York.

Dr. **Davis**. I think nationwide. I know that Dr. Robert Butler, when he was the head of the NIA, worked closely with them.

Senator **Metzenbaum**. Thank you, Doctor. Now, let me just say to you that you indicated that your concern is a matter of having another oversight team, another report.

Dr. **Davis**. Another layer of bureaucracy.

Senator **Metzenbaum**. So that you understand, I do not think that is where Senator D'Amato was coming from, and I do not think that is what I was saying. I think what concerns us is whether or not that which you do is somehow funneled in to somebody other than a bureaucrat where you just get the report and you put it on a shelf, or whether or not some portion of it is gleaned out and put together with portions of that which is done in some other part of the country or some other part of the world.

I am sometimes amazed at how we do make breakthroughs and how there are results that come about, but I also have the feeling, and I am frank to say, and I think I am right about this, that there is a kind of jealousy in the researchers, that they hold unto themselves that which they are developing until they are able to get it put into a final report and published in the New England Journal of Medicine or something of that kind. That is a problem because we are paying for it with taxpayers' dollars.

So I think what we are saying is we are worried about getting full value for the taxpayers' dollar. We are not looking for another report.

I think part of our comments are relating more to those who receive your work and who are at the coordinating point rather than those of you who are involved in the direct research. I think we, at least I for one, feel that it is their responsibility with respect to whether there is some duplicative effort. It is my recollection that the researchers who made the great breakthrough in the field of DNA, both of them came out with their results at almost the same time. I did not find that a problem. I just thought that that was great. Maybe the results contributed more, and I was not worried that we had wasted Government dollars in that effort.

So I am not as concerned, Senator D'Amato, that two groups may be studying the same thing. I am more concerned as to whether when they finish doing their research there is some way of doing what you are talking about, and that is coordinating and seeing to it that they do not hold back for 7 or 8 years until all of the research is completed, and that we make possible this interchange of information while the research is going on.

Senator **D'Amato**. Mr. Chairman, if I might, I think you have very aptly expressed my concern. We understand that different people should be undertaking similar projects, but it is the coordination, the sharing of that information.

You see, Mr. Chairman, we are politicians, and we are not supposed to ask about those kinds of things, but it is our duty and our obligation, and you have carried that out nobly for many years, ascertaining and asking those probing questions and seeing that we minimize the kind of unnecessary conflict to maximize our efforts in this area.

Senator **Metzenbaum**. Thank you, Senator.

Dr. **Wyngaarden**. May I have just a word on this? The coordination, I think, has been nicely demonstrated by Dr. Davis at the level of individual scientists.

Senator D'**Amato**. Finally we got someone to tell us about it.

Dr. **Wyngaarden**. Yes.

Senator D'**Amato**. Although it took a little probing.

Dr. **Wyngaarden**. They talk to each other, and rather than work being tied up for 7 or 8 years, I think that the tendency may be in the other direction of scientists——

Senator D'**Amato**. Dr. Olsen is afraid to talk. He came in here and read us a whole bunch of statistics, and then he says: "Oh, I cannot tell you about this policy and that policy and the other policy." Dr. Olsen is protecting his turf. There is no doubt about it. Big brother is listening.

Anyway, that is my own appraisal, you see.

Dr. **Wyngaarden**. I wanted to put in a word for the National Library of Medicine in this connection because research work that is of merit is published. It is published as individual papers, as symposium papers, as conference documents, et cetera. All of this is collated by the National Library of Medicine, and a scientist who wants to know what is going on in a field, to get the background data, only has to contact the National Library of Medicine and get a complete printout of everything published between certain dates in that field.

Senator **Metzenbaum**. Thank you very much.

[The prepared statement of Dr. Davis and responses of the Veterans' Administration follow:]

Statement of Kenneth L. Davis, M.D.
Professor of Psychiatry and Pharmacology, Mt. Sinai
School of Medicine and
Chief, Psychiatry Service, Veterans Administration
Medical Center, Bronx
before the
U.S. Senate Subcommittee on Aging,
October 2, 1984.

Mr. Chairman and Members of the Committee: Thank you for the opportunity to speak before you here today. I would like to talk to you about the research that we have been conducting in Alzheimer's disease, a health problem affecting millions of Americans that is well known to this committee.

Alzheimer's disease is now recognized as the most common cause of serious loss of cognitive function in the elderly. The principal symptoms and neuropathologic hallmarks of AD have been known for some time; clinically, these patients are characterized by progressively worsening memory, gradual loss of language ability, and praxis functions, and, occasionally, agitation, violence, or other grossly disturbed behavior. The principal neuropathologic features are the neurofibrillary tangles and senile plaques; because the neuropathologic features are the same regardless of whether onset comes before age 65 (presenile) or after age 65, the term Alzheimer's disease or senile dementia of the Alzheimer type (AD/SDAT) is used to refer to all such patients. Epidemiologic studies indicate that from 5% to 10% of all people older than age 65 suffer various dementias. Of these, approximately 50% have Alzheimer's disease (AD), 20% have multiinfarct dementia (MID), 20%-25% have neuropathologic features of both AD and MID, and the remaining 5%-10% have rarer forms of dementia.

In the United States approximately 1-1.5 million people older than 65 - out of 25 million - probably have AD. Since nearly all victims of AD eventually require complete custodial care, these figures demonstrate both the enormous suffering and personal loss caused by this disease as well as the effect it will have on the cost of health care in our nation.

Although currently there is no treatment for AD that is effective in the majority of cases, recent research on the neurochemistry and psychopharmacology of this disease has raised the possibility that an effective treatment may ultimately be developed.

A series of studies conducted in the United Kingdom in 1976 and 1977 reached an extraordinary conclusion about Alzheimer's disease. Three laboratories working independently reported that in AD, there was a loss of brain cells that made the neurotransmitter acetylcholine. This conclusion was based upon the discovery that the enzyme which synthesizes acetylcholine, and is only found in brain cells that make acetylcholine, (i.e. cholinergic neurons) was very much reduced in the brains of patients with AD.

This finding led a number of research groups, including our own at the Mt. Sinai School of Medicine and the Bronx VA, to suggest that a possible treatment for AD would be a drug that could increase brain cholinergic activity. Such an attempt was particularly appropriate to our research ward, because we had been investigating a drug that increases brain acetylcholine, physostigmine. Physostigmine inhibits the breakdown of acetylcholine. In fact, while neurochemists in the United Kingdom were finding that the brains of patients with AD had a cholinergic deficit, our laboratory was conducting a study of the effects of physostigmine on memory in young normal people. We found that the administration of physostigmine to young normal people could improve their ability to remember new information. The simultaneous discovery of the acetylcholine deficiency in patients with AD, and the ability of drugs that increased brain acetylcholine to enhance memory, led to the idea that the memory disorder in AD might be improved with drugs like physostigmine.

Together, the neurochemical and psychopharmacologic data provided a strong rationale for clinical trials of cholinomimetic drugs in patients with AD. Unfortunately, a limited number of drugs are potential candidates for cholinomimetic therapy. Physostigmine and arecoline, the most readily available cholinesterase inhibitors and cholinergic agonists, respectively, both have the disadvantage of being relatively short acting with half-lives of about 30 minutes. Long acting cholinesterase inhibitors and agonists such as di-isopropyl fluorophosphate and oxotremorine, respectively, are fairly toxic drugs and thus are not good candidates for clinical trials.

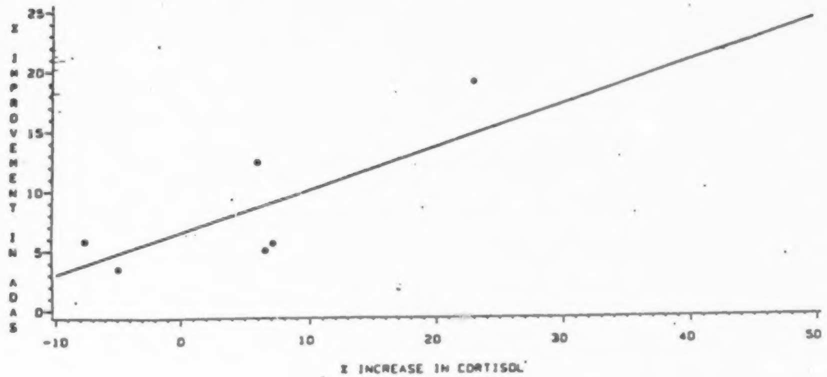
As a result, the earliest trials of cholinomimetic therapy for AD usually involved either choline or phosphatidylcholine (lecithin), precursors to acetylcholine that are safe even in large quantities and which are normally obtained in the diet. It has been demonstrated in rats that increases in dietary choline or phosphatidylcholine are followed by increases in the concentration of brain acetylcholine. Clinical trials, however, failed to demonstrate any acute effect of these precursors on memory or other aspects of cognition either in unaffected people or in patients with AD. The reason for this failure appears to be that precursors do not substantially affect the rate of cholinergic transmission even though they may increase acetylcholine concentrations.

With the help of a program project grant from the National Institute of Aging, as well as support from the Veterans Administration, my colleague Richard Mohs and I began a study of physostigmine in AD. We first administered an intravenous form of the drug and then an oral preparation. The initial studies with intravenous physostigmine were encouraging, although the ability of physostigmine to improve memory was hardly as robust as one might have hoped. Still, additional studies were necessary, because intravenous physostigmine is so short acting that it was impossible to adequately assess whether the drug would help patients in daily life.

Studies with oral physostigmine have begun. The drug is given every two hours from 7 a.m. to 9 p.m. in doses of 0.0, 0.5, 1.0, 1.5 and 2.0 mg each for three to five days. On the last day, the patients' overall symptoms are rated with the Alzheimer's Disease Assessment Scale (ADAS) at each dose. This instrument, developed in our laboratory, measures all of the principal symptoms associated with AD including memory loss, dysphasia, dyspraxia, agitation, and mood disturbance. The dose of oral physostigmine associated with the least severe symptoms is then randomly readministered along with placebo for three to five days under double-blind conditions.

Of the first 11 patients who completed this study, 10 showed some decrease in symptoms with at least one of the physostigmine doses. Of those, 8 showed less severe symptoms while receiving physostigmine in the replication phase of the study than they did while receiving placebo. From a clinical perspective, only 3 of the patients demonstrated enough improvement to be clinically relevant. On the ADAS these patients showed at least a 10% improvement over placebo. However, there is very good reason to believe that not all patients with AD will respond to this drug, nor will all patients who respond to physostigmine respond in the same way. This problem arises from the fact that for physostigmine, which prevents the breakdown of existing acetylcholine, to work, the brain must be able to synthesize some acetylcholine. Unfortunately, as the disease progresses cells which synthesize acetylcholine are dying. Because of this problem we needed some way, besides memory testing, to be sure the physostigmine was getting into the patients' brains. In collaboration with an endocrinologist in our laboratory, Dr. Bonnie Davis, we have found that when physostigmine enters the brain, and acetylcholine containing cells are available to synthesize adequate quantities of acetylcholine, the physostigmine increases the amount of cortisol the patient's body secretes at night. The effect of physostigmine to increase nocturnal cortisol concentrations correlates with the drug's ability to improve the symptoms of AD, as the figure below indicates. These results support the notion that physostigmine only improves the cognitive functioning in those patients whose acetylcholine containing neurons have not yet been devastated by the disease.

CORTISOL vs COGNITIVE
RESPONSE TO ORAL PHYSOSTIGMINE



$r=.88 \quad p < .01$

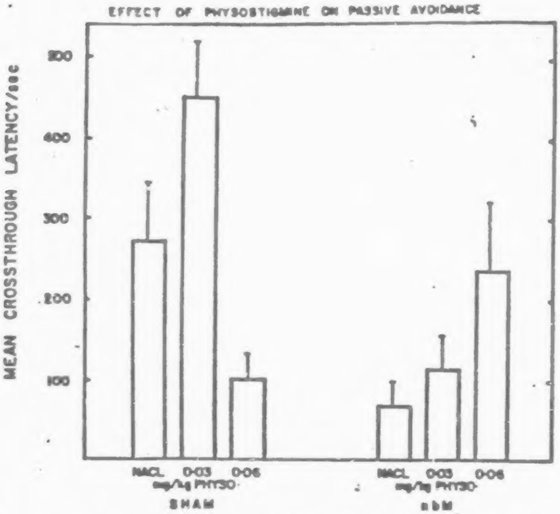
Although these results are encouraging to the scientist, for the patient with AD the effects are not as impressive or uniform as one would desire. Instead, they only point to other directions that must be pursued and better drugs that must be developed. Nontheless, these results with oral physostigmine, which have been replicated in at least 5 other laboratories, indicate that current approaches are rational.

Given these effects of physostigmine, as well as results from other researchers, there now is a need to identify those Alzheimer's patients who may be made modestly less demented by therapies that increase brain acetylcholine. A cooperative study has been proposed by Richard Mohs and myself, as well as medical scientists from a number of other VAs, to determine the ultimate clinical utility of physostigmine. We are hopeful that it will be funded, and over the next five years, may be able to ascertain just what segment of the Alzheimer's population may be benefited by physostigmine. Such a study can only be done through the cooperative studies program at the Veterans Administration. It will require extensive coordination of the large study population that is made available by the health care delivery system in the Veterans Administration. The cooperative studies program has produced invaluable studies of the effects of treatment of high blood pressure, and prostate cancer, yielding information which has saved lives, prevented disability, and saved health care dollars.

Whatever the results of the studies in progress, it is clear that not all patients are going to be helped by physostigmine treatment, and that those patients who are helped will not be returned to a normal life. For that reason, additional work is necessary. To that end, our program has been engaged in developing an "animal model" of Alzheimer's disease that may expedite development of other drugs. These studies are made possible by a merit review grant from the VA to me and my colleague, Dr. V. Haroutunian, as well as collaboration with the Hoechst Roussel Pharmaceutical Corporation. Together, we have found that destruction of a tiny part of the rat's brain can produce a deficit in acetylcholine that in many ways resembles the deficit that exists in AD. This rat model makes possible the screening of drugs for their ability to improve the memory of "demented" animals.

In the future, and with the help of the NIA's new Alzheimer's Disease Research Center, new drugs that might be more efficacious will be tested, and more importantly, the model will be extended so that it even more closely resembles the human condition. Other neurotransmitter and neuromodular deficits, particularly of noradrenergic neurons and somatostatin concentrations, will be induced. In addition, with the help of funding from the VA and the NIA, we are now transplanting brain tissue to these lesioned animals

The figure below illustrates how physostigmine, the drug we are administering to humans, can reverse the abnormal behavior that animals with a cholinergic deficit exhibit. Other drugs such as oxotremorine and 4-aminopydirine, are equally effective at normalizing these animals.

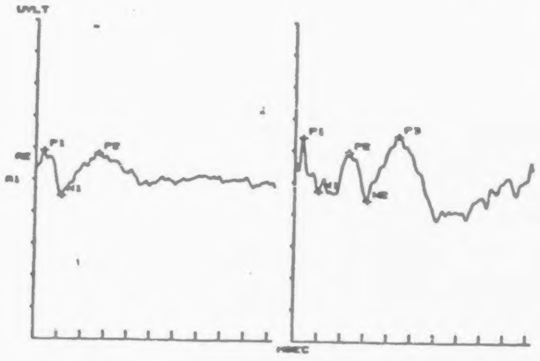


Effects of post-acquisition physostigmine administration on the 72 hour retention of passive avoidance in nbM lesioned and sham operated rats.

In the future, and with the help of the NIA's new Alzheimer's Disease Research Center, new drugs that might be more efficacious will be tested, and more importantly, the model will be extended so that it even more closely resembles the human condition. Other neurotransmitter and neuromodular deficits, particularly of noradrenergic neurons and somatostatin concentrations, will be induced. In addition, with the help of funding from the VA and the NIA, we are now transplanting brain tissue to these lesioned animals in the hope of normalizing their behavior. This will be a difficult process, but one with obvious implications for developing a treatment for Alzheimer's disease.

A real problem in AD research is the difficulty in making this diagnosis with absolute certainty. At present, a definitive diagnosis of AD is only made at autopsy by examining the brain under the microscope, or with the help of a biopsy. Rarely are biopsies performed, thus some uncertainty inevitably exists when a clinical diagnosis is made. For that reason our program, with the help of funding from the NIA and the VA, has been searching for a clinical test for AD that would facilitate a diagnosis prior to autopsy.

The figure below is a representation of electrical activity recorded from the scalp when normal people hear a series of similar tones (left panel). These wave forms can be generated and recorded with uncanny reliability. However, as the panel on the right indicates, when similar tones are interrupted by a different tone, additional waves appear.



The table below illustrates that patients with AD show a very different response to those tones than normal elderly.

Discriminant Function Coefficient	
P2 Latency to "Frequents"	-0.41
N2 Latency to "Rares"	0.62
P3 Latency to "Rares"	0.49
P3 Amplitude to "Rares"	-0.43

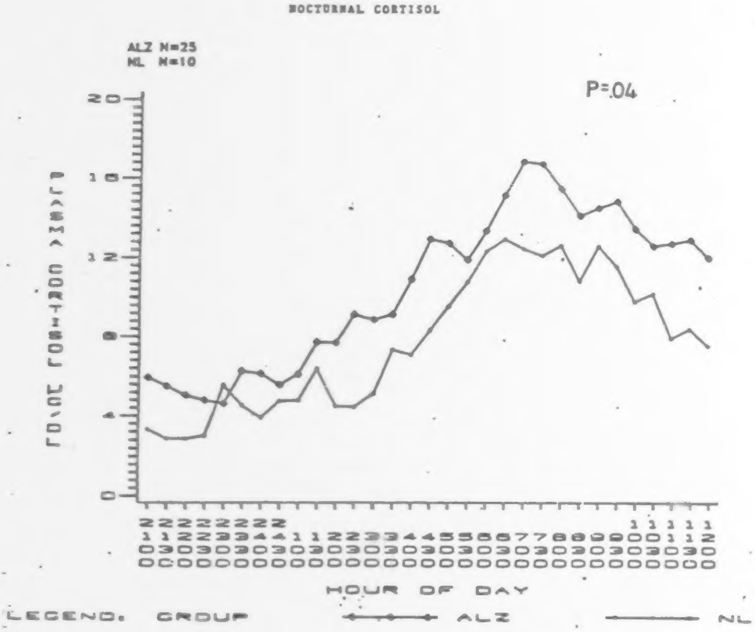
Actual Group	N	Predicted Membership	
		Correct:	Incorrect:
Alzheimer's	12	12	0
Controls	16	15	1

Percent of "grouped" cases correctly identified: 96.4%

We have so far been very accurate in using these measurements of electrical activity to classify patients as having AD or being without dementia. This is not the same as saying that this technique can differentiate Alzheimer's patients from patients with other forms of dementia, but it is at least an encouraging first step. An answer to that question will be provided by work that will be conducted by our Alzheimer's Disease Research Center. The principal investigator in these studies is Dr. Thomas Horvath.

The data that he has so far generated encourages us to look at scalp electrical activity in far more depth to determine if it might be a diagnostic marker of Alzheimer's disease.

Another possible marker is concentrations of plasma cortisol in blood. The pattern of nocturnal cortisol secretion, as shown in the figure below is higher in patients with AD than normal elderly people of roughly the same age. Other aspects of cortisol



secretion seem equally unusual. For example, cortisol in a single sample of blood taken at 9 a.m. was, in fifteen or sixteen instances, higher in Alzheimer's patients than in age and sex matched normal persons. These abnormalities also suggest that measurements of cortisol may help differentiate Alzheimer's from normal people, and perhaps other forms of dementia. However, it is important to emphasize that these are initial studies and require much more work before we can take them as definitive.

Clearly, many different kinds of studies must be done in order to develop effective treatments and better diagnostic techniques for AD. Some of these will involve clinical trials of new treatments or diagnostic tests, others will be autopsy studies, and still others will be preclinical studies of animal models. Recent rapid advances in understanding the neurochemistry of this disease have provided a rational, scientific basis for designing both clinical and preclinical research programs. In order to facilitate even greater progress, the NIA, with the help of Congress, has designated Alzheimer's Disease Centers. I have the good fortune to direct one of the approved centers at the Mt. Sinai School of Medicine. Hopefully these centers will bring us closer to understanding, and eventuall treating this disease. However, the initial funding levels for these centers is considerably less than the amount that could be utilized. To become as effective as they can be, centers will need to see a substantial increase in this program over the next few years.

This concludes my statement, I would be pleased to answer any questions that you or members of the Committee may have.

QUESTIONS TO THE VETERANS ADMINISTRATION FROM SENATOR GRASSLEY

SENATOR CHARLES E. GRASSLEY

Question: (1) The Report of the Secretary's Task Force on Alzheimer's Disease has done a comprehensive job of reviewing research underway in the Department of Health and Human Services and the Veterans Administration, and of identifying future lines of research, education and training on Alzheimer's Disease.

(a) My first question is: where do we go from here? Secretary Heckler pointed out in her introductory statement to the Report that it "presents a detailed plan for the future." Will the Veterans Administration be committed to supporting the various lines of research outlined in the Report?

Answer: The Veterans Administration's Office of Research and Development has been actively interested for a number of years in the problems faced by Alzheimer's patients and their families. A few examples of this commitment to the research of the disease follows:

1. Since 1979 the VA has funded 81 studies on senile dementia of the Alzheimer's type (SDAT).

2. During FY 1983 alone the VA funded 69 studies on dementia in general. These studies focused on: Diagnosis; behavioral and cognitive changes; anatomical and physiological changes; chemical treatments for cognitive deficits; longitudinal social, environmental and family variables.

3. During FY 1983 VA researchers competed for and successively won $507,000 of extramural funding for research on SDAT.

4. The VA is currently working with the Administration on Aging to develop a Health Services Research and Development proposal to both develop and evaluate the efficacy of various community-based services for patients and families of patients with SDAT.

Therefore, the VA has already committed significant time and resources in supporting most of the various lines of research outlined in the Secretary's Task Force report.

Question: (b) If not, then how will the suggestions made by the Task Force be carried out, and how can the Task Force Report be considered a plan?

Answer: The VA representative on the Task Force has an active role in determining the significant future directions for research of this disease and his ideas are already a major part of the VA program.

Question: (c) If yes, does that mean that the Veterans Administration will call for proposals on the various items defined in the Report as necessary future research, or that the intramural research programs of the Veterans Administration will undertake research in these areas?

Answer: The VA's Medical Research Service actively solicits investigator initiated research proposals twice a year from VA employees. In addition, the VA from time to time solicits proposals in specific research areas. In the field of aging, for example, the VA advertised a special opportunity for investigators to propose research in the basic biology of aging. To this announcement, more than 350 VA investigators sent in letters of intent to apply. Hence, the problems of aging and of Alzheimer patients and their families have been and will continue to be foremost in our future plans for research. In addition, the VA Cooperative Studies Program Evaluation Committee has recently recommended approval to fund a large controlled, multi-hospital clinical trial on the treatment of Alzheimer's disease with oral physostigmine.

Question: (d) When will we see this begin to happen? Do you have plans to inform the Congress and the public about the results of this activity?

Answer: The VA is already actively pursuing the study of Alzheimer's disease. VA investigators routinely report their findings in quality, peer reviewed journals along with presentations at national and international symposia and conferences.

SENATOR CHARLES E. GRASSLEY

Question: (2) Secretary Heckler, when she appeared before this Committee in May of last year, said that the Department had "reached outside of precincts of government for allies in the private sector."

What plans does the Veterans Administration have to continue such public-private collaboration?

Answer: The Veterans Administration vigorously pursues collaboration with universities, other government agencies and the private sector in identifying common areas of concern which are most relevant to the treatment of diseases prevalent among the veteran patient population. Such collaboration in the areas of research, education and training is believed to be ultimately beneficial to the elucidation, treatment and prevention of diseases occurring in veterans. The VA plans to continue to encourage VA investigators interested in research on Alzheimer's Disease to seek collaboration from all sources in order to improve the treatment of the veteran patient with this disease.

Question: (3) The Task Force Report stated that the World Health Organization has made the epidemiology and diagnosis of Alzheimer's Disease one of its major priorities in the next decade.

Is the Veterans Administration cooperating in this effort and, if so, can you tell us a bit about that?

Answer: VA research management officials are aware of the collaborative efforts going on between the National Institute on Aging and the World Health Organization in making the epidemiology and diagnosis of Alzheimer's Disease a major priority in the next decade. Our research staff has met with the staffs of both organizations at many interagency forums and have pledged the VA's full support to future collaborative efforts. With the rapid increase in the population of aging veterans, we expect close collaborative efforts among all federal researchers will intensify in the next decade.

SENATOR CHARLES E. GRASSLEY

Question: (4) Are the Alzheimer's support groups across the country helping in the research effort? For instance, it was mentioned in the Task Force Report that the support groups might be able to help researchers secure brain tissue from deceased victims of Alzheimer's Disease. Has there been any effort to regularize relations between the support groups and the Veterans Administration and to develop an approach to this problem?

Answer: The securing of human brain tissue from deceased victims of Alzheimer's disease is an important link in being able to conduct advanced research on the disease. There are a number of groups working together on this problem. Dr. E. Bird, who is a VA investigator and the Director of the Brain Tissue Bank at the McLean Hospital in Belmont, Massachusetts, found, like others in the field, that the problem is not so much in families and patients agreeing to donate brain tissue after death but the problem is in the review of the patient's past medical records, in coordinating and standardizing the removal, fixation, cataloguing and storage of the tissue itself. There is no national coordinating center where these types of detailed issues are addressed. Presently, the Alzheimer Disease and Related Disorders Association has published a list of neuropathologists across the nation who are involved in research on brain tissue of Alzheimer patients. Therefore, requests that come to one of these researchers must be handled on a case-by-case basis. To attempt to do more central coordination than is now underway, a careful study would be necessary, outlining operational costs and long-term commitments by the funding agency(ies). One particularly important problem is that not all patients or families who are willing to donate brain tissues have medical records that validate the supposition that the patient had Alzheimer's disease at all. Hence, before brain tissue can be accepted a careful review of the medical history of the patient is mandatory. This is obviously a time consuming task requiring professional supervision.

Senator **Metzenabaum**. I want to thank all of the members of the panel, and so that our time does not run out, we had better move rather rapidly to get into the next panel. Thank you very much.

The next panel is Dr. Barry J. Gurland, Director of the Center for Geriatrics and Gerontology; Dr. Price, Ms. Noyes.

By reason of the hour and not by reason of the quality of your presentation, the Chair is going to be rather strict in holding you to 5 minutes for your presentation because the chairman himself already had to leave for some other commitments. We are interested in what you have to say and I look forward to you saying it.

It seems to me, Senator D'Amato, you might note that when several of our witnesses who came from the Government agencies left, half of the room left with them, and that will give you some idea of how to balance the budget. I did not know that they needed them here to carry their books and papers and coats.

Senator **D'Amato**. We will probably get more responsive answers now.

Senator **Metzenbaum**. Dr. **Gurland**, please proceed, and we are happy to have each of you with us.

STATEMENTS OF DR. BARRY J. GURLAND, DIRECTOR, CENTER FOR GERIATRICS AND GERONTOLOTY/LONG-TERM CARE, COLUMBIA UNIVERSITY FACULTY OF MEDICINE AND NEW YORK STATE OFFICE OF MENTAL HEALTH; DR. DON PRICE, DIVISION OF NUROLOGY, JOHNS HOPKINS SCHOOL OF MEDICINE; AND LIN E. NOYES, PRESIDENT, ALZHEIMER'S DISEASE & RELATED DISORDERS ASSOCIATION OF NORTHERN VIRGINIA

Dr. **Gurland**. I certainly will not refer to my prepared remarks. I will try to respond to the issues that I have heard raised this morning.

We are a long-term gerontology center at Columbia University, designated for HHS region II by the Administration on Aging. I will list some of the features of the center's system that I think is conducive to coordination of funded activities.

There is one such center per HHS region. There are thus 10 across the country, plus 1 which is devoted to minority interests. These centers act as a network, in consort, through an association of centers.

The object of this network is to work together in developing a knowledge base which can be directed at improving the long-term care services across the country: a knowledge base that is shared between members of the national network. When a new model of care or a new training technique or new research result which is relevant comes forward, then this is shared with all centers for distribution within their region.

The distribution is through the so-called aging network, by which I mean the area agencies on aging and the State units on aging. It is a unique feature of the centers, that they have forged a link between academic centers and the providers in the front line throughout each of these regional areas.

There is an information system lodged within the center in Kansas which keeps a record of all projects run by every center.

That information system is not only sent to the Administration on Aging, but it is regularly updated in each center's own information system. Any product which arises in a center which would be useful for distribution, is lodged in that information system, together with the names of experts in those centers who can back it up. That information then is used by the entire network throughout the country.

The Association of Centers meets regularly and decides on priorities and which center will do what. Each center adopts a special leaning in one or other direction in long-term care. For example, a decision has recently been made that one of the priorities is to develop systematic assessment methods. A front line worker has to try to sort through a great deal of information about a client and about what services they are getting, in order to eliminate redundant services and to coordinate the fragmented system. They need some method of evaluation and a systematic way of handling that information. That has become a pressing problem and that particular task has been given to us to try to lead in.

Moreover, the national association meets also with the executive board of the National Association of State Units on Aging and the National Association of Area Agencies on Aging, as well as representatives from the Administration on Aging to decide on priorities.

This kind of coordinating system is repeated at a regional level though task forces and reporting procedures, which involve the aging network that we are trying to serve.

Another issue that come up today is the relative allocation of resources to research and training. The centers try to relate research to training, as is enabled by having an academic center work with the service providers. My group has been involved in aging research since 1972, and our current efforts at training the front line workers in how to serve the elderly stems directly from our research. Our research into different service models led us to concentrate on disturbing behaviors in the elderly, particularly in Alzheimer's disorder as a critical factor in causing stress to the caretaking family and precipitating institutional admission. Research gave us a base of information for developing a training program for the front line workers, not only nurse's aids, but also food workers and drivers and other people who really have to manage these difficult bahaviors at respite sites, such as day care centers.

I would like to suggest that this kind of research be supported in addition to biological research. We have to conduct research on the delivery of care to the elderly, in a way that can be as precise, as scientific, as valid and useful as biological research.

Senator METZENBAUM. Dr. Gurland, have you arrived at any conclusions as to what kind of personnel should be employed in the geriatric nursing care or the geriatric centers where care is provided? Should they be professionally trained, and are our universities doing an adequate job in that respect, or do you need university training?

Dr. GURLAND. We do actually have an extensive university program in training gerontologists and service workers.

Senator METZENBAUM. Are you talking about at Columbia?

Dr. **Gurland**. At Columbia, yes, and as part of the effort of the center network, there has been an effort to develop a systematic curriculum which can be circulated among community colleges. That is one of the products which has been distributed. This is what keeps the center network active. We do not only concentrate on building up skills within our own campus, but we try to spread the products of our efforts nationally.

However, we have come to understand that the people who have the most intimate and direct contact with patients very often do not have academic skills or very much in the way of professional training. What we have done is to research what kind of training can they really benefit from. We have developed a training which has proved to be very acceptable to the hands-on staff and which will now be distributed nationally to 600 different area agencies on aging.

[The prepared statement of Dr. Gurland follows:]

STATEMENT OF DR. BARRY J. GURLAND

I offer some comments on the role of a Long Term Care Gerontology Center in general, and Columbia University Center for Geriatrics in particular in helping to improve respite services for the elderly with Alzheimer's Disease. These comments will emphasize the training of hands-on, front-line service workers; and the close relationship that exists between research and training.

Our full name is the Center for Geriatrics, Gerontology and Long Term Care of the Columbia University Faculty of Medicine and New York State Office of Mental Health. This Center is an independent entity in the Faculty of Medicine and is supported by the Administration on Aging as well as by the medical school and New York State. It is the Long Term Care Gerontology Center designated for Region II (New York, New Jersey, Puerto Rico and the Virgin Islands) by the AoA. It is one of eleven such centers across the country: One for each HHS region and one for minority groups. The Centers act as a collaborative network for establishing and disseminating a knowledge base on long term care.

The mandate given our Center is in essence to develop a coordinated continuum of care for the frail elderly person. This is to be done through research (for example on long term care services, program evaluation, family support, illness behavior, assessment techniques, diagnosis, and case management); education and training; service model development; and rendering technical assistance to the aging network (State Units on Aging, Area Agencies on Aging, and other providers and planners).

We are now ending the fourth year of activity as a Center. The first years were directed at building up programs in the University, medical campus and neighborhood. The last two years have emphasized technical assistance to the Aging Network. Recent directives from the AoA are to focus on Health Promotion, Prevention of Injury, Models of Community Services, and Alzheimer Disorder.

The Center reports its activities to the Central and Regional Office of the AoA and to the other Regional Centers. Responsiveness to the Aging Network is achieved through standing task forces, one for each state, which include Center staff, representatives of State Units on Aging and Area Agencies on Aging, and from the Regional AoA office. In addition representatives from SUA's and AAA's serve on our Policy Advisory Board. A joint proposal by the Association of Centers and N4A (National Association of Area Agencies on Aging) is now under consideration for development of a manual to assist their member agencies to select appropriate assessment techniques for planning, monitoring and case management. A products committee of the Association of Centers with N4A/NASUA representation, suggests and selects materials developed by the Centers for distribution to SUA's and AAA's.

Consideration of respite services has loomed large in the Centers' plans and accomplishments. This is not surprising since respite services are an essential part of the continuum of care and are often the responsibility of the Aging Network. A Review of New Opportunities for Respite Care, prepared by one of the

LTCGC's (Arizona) has been distributed recently. Other recently selected products relevant to respite care include two developed by our Center. Both are directed at training hands-on staff involved in respite care on: (a) staff involvement in problem solving groups directed at difficulties in delivering quality care and (b) improving staff skills in managing disturbing behavior.

Our Center was one of the first academic groups whose research (prior to 1978) pointed out that high rates of depression and demoralization exist among family caregivers of the frail and dependent elderly person. We also studied the way the elderly person's dependency influenced the decisions by the family to request admission to an institution and how formal respite services affected the family's role in keeping the elderly person in the community. We became aware that disturbing behaviors were critically important in determining the outcome of Alzheimer's Dementia and Related Disorders and that respite services had a major role to play in this area. Disturbing behaviors are common in Alzheimer's Disease. They include wandering, dangerous lapses of memory, wakefulness and activity at night, endless repetitions of remarks and actions, shouting, aggressiveness and destructiveness, incontinence, indiscretions, and losing important possessions.

Our manual on Management of Disturbing Behavior was a response to a survey showing that field workers wanted training in this area. It is an 87 page document, consisting of instructions to a trainer who will be in close contact with field workers. It provides background information on the causes of disturbing behaviors, case examples of each disturbing behavior with suggested interventions for each, and scenarios for role playing these interventions. All these features are designed to be suitable for hands-on workers; especially the use of experiential (or practical) rather than didactic (or textbook) learning. In the four training sessions we have given, the trainees have been nursing aides, drivers and food workers at Day Care Centers, Senior Centers and Nutrition sites; also other staff at these sites, such as licensed nurses, social workers and directors came to the sessions. Evaluations showed that this training was meeting a need. Now that the manual has been fully field tested it will be distributed by the Center Network to 50 State Agencies and 600 Area Agencies.

Training methods that have substantial impact on the field take a great deal of time to develop. A nurse and a social worker on our staff took one year to construct, test and revise the manual on disturbing behavior. Follow-up after nationwide distribution will take much more staff-time. Only a network of Centers could manage such a commitment. Yet, such effort is well spent. In the instance of disturbing behaviors a successful management program can reduce stress to the family, prevent many institutional admissions, minimize tranquilization of patients, avoid rejection of elderly clients by Senior Centers, and relieve the load on overtaxed staff and thus obviate staff burn-out.

One of the strengths of a collaboration between academic centers and the Aging Network is the valuable exchange that occurs between the development of training for service and research endeavors. This has been illustrated by the way this training program on disturbing behavior arose from an interaction between our research studies and the clinical priorities of the Aging Network. Moreover, this productive interaction continued. In the course of training, we noted that certain Adult Day Care Centers were specially organized to manage disturbing behaviors. Yet there were too few of these to meet the need. The State Office for Aging of New York State asked us to provide a review of options for policy on respite services by Day Care Centers. The New Jersey Division on Aging requested that we address the issue of uniform standards for Day Care services. We have consequently launched a Systematic Study of Day Care Centers in New Jersey and a Survey of Day Care Centers in New York. This has involved finding new research methods for studying fleeting behaviors such as aggressive outbursts and staff responses to those crises.

The pilot research on disturbing behaviors has already produced ideas that will be useful for service model development and training. For example, disturbing behaviors in Alzheimer's Disorder occur frequently at home as well as in the day care center situation, yet families are not sufficiently seeking advice from day care staff as to how to manage these behaviors at home. Therefore we are beginning a trial in which we train staff to hold regular dialogues with family to discuss modes of intervention that the family can attempt.

We have also expanded our study to British models of respite care. This is made possible by our long standing research collaboration with a team in London in which we have compared home care services and alternatives to institutional admission in London with those in New York. We have recently noted that British day care centers offer more personal care services such as bathing, washing hair, laundry and incontinence training than do their counterparts in this country. This is likely to have an effect on relieving family stress and in maintaining the frail elderly who have little or no supporting family. We have initiated a series of training manuals on the British respite services for distribution where relevant here: These include manuals on 'How to run a non-medical day center for the confused' and 'How to organize a travelling day hospital for rural areas unable to support a full-time facility.'

Our Center alone is conducting 70 discrete projects. The few selected projects I have described here are intended to illustrate how we join our academic, research and teaching skills to the experience and service opportunities of the Aging Network in a strong working collaboration.

Other projects of the Center on the topic of Alzheimer's Disorder and related dementias include (1) Presentations on caring for the caregiver at the New York City's Mayor's Annual Conferences on Alzheimer's Disease in 1983 and 1984; (2) Provision of research data for the New York State Office for the Aged policy statement on Family Caregivers (published 1983); (3) Regional training in conjunction with the Area Agencies on Aging and State Units on Aging on Coordination of Care for Alzheimer cases (Newark, 1984), and on Assessment of Alzheimer's cases (Albany, planned January, 1985); (4) Preparation of a manual of answers to questions most frequently asked by families of Alzheimer's Disease cases; (5) Membership of the Governor's Task Force on Family supports in New York State; of the Institute of Medicine (National Academy of Sciences) Committee on Nursing Home Regulation; Membership of New York State Health Planning Commission committee on Hospital Iniatives in Care of the Elderly; (6) Eighteen papers or chapters on clinical and research aspects of Alzheimer's Disorder; (7) Eight manuals on innovations from Britain in the management of dementia; (8) Origination and demonstration of the POISE program for training multidisciplinary teams in long term care facilities to continuously upgrade their care plans through self-learning and evaluation.

Some other active Center projects relevant to Alzheimer's Disorder and to respite care include the development of methods for detecting confusion and dementia among elderly clients in congregate care housing (CONGREGATE-CARE) and in primary care settings (MERGE-CARE) and an observational technique for sensitizing staff to the effect they have on clients in respite care settings. In addition, research data collected by the Center has been published on cross-national comparisons of the care of severe chronic disability among the community elderly (half of which is due to dementia). It was found that disability is less distressing in London than in New York in certain situations but that increased use of formal home care services does not always reduce rates of institutional admission.

Other areas of research in respite care for Alzheimer's Disorder identified as requiring investigation include; (1) Circumstances under which respite care increases rather than reduces institutional long term admission; (2) Whether respite admissions should be in hospitals, nursing homes or small personal units; (3) How to make the patchwork of respite services more accessible to and clearly understood by consumers; (4) How respite services can most efficiently relieve the stress on family caretakers; (5) What changing family roles will mean to demands on respite care; (6) What incentives can be offered to families to support the Alzheimer patient.

There is a great overlap between the issues of support services raised by Alzheimer's Disease and by other dementias or other causes of chronic disability or disabling behaviors. Almost all the respite services provided for Alzheimer's Disease sufferers or their families are also used for other kinds of patients. Training of staff in these settings is to a large extent transferable across types of patients. Nevertheless, considering the needs of each condition separately allows one to be more precise about the strains and gains of caretaking, the package of services required and the best way of selecting and training service staff. For example, it is generally more stressful to caretakers to look after an Alzheimer patient than one with stroke because the former is more likely to have disturbing behavior, to progressively deteriorate, to be unable to show appreciation for being helped and to limit the social contacts of the caretaker. Moreover, a concentration on each condition of disability in turn ensures that none will be neglected, as Alzheimer's Disease has been until recently. Thus the need for support services for Alzheimer's Disease should be given separate consideration but this should not lead to neglect of other disabilities nor to disregard of the desirability of integrating all support services for the chronically disabled elderly and their families.

Senator **Metzenbaum**. Thank you very much, Dr. Gurland.

Dr. Price.

Dr. **Price**. I was going to make some comments about strategies for supporting investigation of Alzheimer's disease, but I am not going to do that. Instead, I am going to make several very personal remarks that I think I am in a reasonable position to make.

First, I would like to comment about what has been learned about Alzheimer's disease over the past 20 years because some 20 years ago, when I was a neurology resident in Boston, we saw many people with senile dementia, and we had no idea what was going on in their brains, and most of those folks eventually went off to nursing homes and were forgotten about.

I think it would be a mistake to underestimate what we learned over the past 20 years. We now know that Alzheimer's disease is the most common cause of that syndrome. We know about the transmitter systems that are involved. We know something about the abnormal proteins that accumulate in nerve cells and in nerve terminals, so that there has been really an extraordinary advance over a 20-year period, and I think the public has paid for that financially, but the reason that you are interested in Alzheimer's disease is because there has been an extraordinary expansion of knowledge about the disease, and really that should not be overlooked.

Senator **Metzenbaum**. Dr. Price, could you capsulize for us the difference in the diagnosis of the normal senile demential and——

Dr. **Price**. Well, I was going to. Actually I brought some slides, but apparently the screen cannot be used. It is hard to address that, I think, without some sort of visuals, but I will try.

Basically your brain is comprised of many billions of nerve cells. In Alzheimer's disease, certain groups of nerve cells are at risk. Not every cell in your brain degenerates and dies. It is certain clusters of nerve cells. One cluster of nerve cells is this one that Ken Davis described, a nerve cell that uses as a communicating chemical a substance called astylcholine.

For reasons which are unclear, those nerve cells die, and I think one of the important questions in that disease is why are certain nerve cells affected and others survive. In other words, why does a person with Alzheimer's disease have a profound memory loss? What cell changes are responsible for that in contrast to a person with Parkinson's disease who may have a perfectly intact memory, but who cannot move?

The differences between those diseases are that different cell populations are affected, and I think what we want to understand, one issue in Alzheimer's disease and in Parkinson's disease, and in Huntington's, and in any of these devastating disorders, is what makes certain nerve cells vulnerable to particular diseases, and that is a central issue here.

Those kinds of issues were not discussed 20 years ago when I was taking care of patients like that. They are a very active area of research now.

So that is what has been learned, and I think that is very important. I think that Senator Metzenbaum and Senator D'Amato are interested in this disease because there have been very substantial advances made, and do not underestimate that.

The second is I want to make some comment about how scientists work because I think Ken's comments were very much on the money, Dr. Davis' comments.

Basically I think scientists start with a good idea, and they try to, sometimes in a very aggressive way, pursue that idea, and if they are like myself, they will do almost anything legitimate to pursue their good idea, and if one has to have strange bedfellows, other collaborators, you will do that.

For example, I have been very interested in this cholinergic system. This is the system that lies deep in your brain that seems to activate your cortex, the thinking part of your brain. In other words, you think with your cortex, but you are alerted by a group of cells that are deep in the brain. If those cells are not working properly, you are not going to be thinking very clearly, and it is those cells that are at risk in Alzheimer's disease.

So we were very interested in pursuing this particular system. Other investigators at other institutions, Chicago, California, Boston, had specific probes, antibody probes that would allow us to ask specific questions about that system in Alzheimer's disease. When I saw their work in the literature, I called them up and said: "Hey, I would like to use that probe to explore this particular issue. Would you let me use it and can we do something in a collaborative way?"

I think that most of the really innovative science proceeds that way. Somebody gets a good idea. He goes to other people, and he says: "Look, this is my idea. This is what I would like to do. Will you help me do it?" I think that is how science moves along.

Really those are the two points I want to make. They are completely different from the points I thought I would be making, but in the context of the discussion, I think that I will rest my case on those two.

Senator METZENBAUM. Thank you very much, Dr. Price.

Ms. Noyes.

Ms. NOYES. Thank you for allowing me to come today.

A little bit different from the other speakers, I am one of the people who is out in the field working with Alzheimer's disease patients and families every day. I am the president of the northern Virginia chapter of the Alzheimer's Disease & Related Disorder Association. I am a nurse, and I have recently been appointed to be the director of the family respite center, which is the first day care center for Alzheimer's patients in northern Virginia.

I am here because for 3 years I have watched families burn out and have been involved in attempts to try and help them get through the disease and keep the patients in the community and out of long-term care institutions, and because based on these experiences, I think I have something to say to people like you that are deciding policies for the country to follow.

It is clear that we cannot wait until the research is in to take care of these people who have Alzheimer's disease, and on the other hand, I think it is very important not to jump on the band wagon and spend a lot of money on things in terms of care giving that are not useful, productive and will not ultimately help the Alzheimer's family.

One issue that comes up right away in my own mind is that when you study the Alzheimer's problem, please go back to the people in your own States, in your own jurisdictions. Go to the Alzheimer's organizations that work on the local levels. Ask them what they need. This in some way will give you a handle on what other people, area agencies on aging, human health, human services, people like this, are doing. You need to get that base line data.

We know that Alzheimer's disease makes two victims, the person who has it and the family, and that the family is responsible for the care of that patient, that their efforts in the care can be enhanced by what we do for them, and that the need for respite has been shown to be an effective way to prolong the amount of time a family person with Alzheimer's can stay in the home, in the community and out of a long-term care facility.

If you can imagine taking care of a toddler day in and day out, changing his pants, feeding him, keeping him out of mischief, making him safe, you can relate slightly to the problems that families who deal with Alzheimer's patients have. The only difference is Alzheimer's patients get worse. Toddlers grow up, and toddlers say, "Thank you."

I think it is important not to jump from A to Z when we are talking about alternatives for care. Just because a family can no longer physically or mentally or emotionally take care of an Alzheimer's patient in their house full time does not mean that the next step is nursing home care. In my opinion nursing homes are the worst place to put Alzheimer's patients, and that we have to open our eyes and see the alternatives that are popping up across the country without Federal dollars to take care of these people.

Anything under the auspices of health care carries a very high price tag.

Senator D'Amato. Why would you say nursing homes are the worst place?

Ms. Noyes. Because nursing homes are set up and funded by government agencies and are geared to help people get well. They are medical models of health care, and these people are ones who get worse, who need maintenance care as skilled, but not skilled in terms of Medicare. So it is an inappropriate placement. It is a waste of money to put Alzheimer's folks in nursing homes unless they have other physical ailments that require other medical or health care.

Senator Metzenbaum. Where do you think Alzheimer's patients should be?

Ms. Noyes. Ninety percent of Alzheimer's patients should be supported to remain in their own homes, in their own communities, through programs like home respite programs or dementia specific day care programs.

Senator Metzenbaum. Let me ask you the reality of that. A family has an Alzheimer's patient at home, and there are young children or there are other tensions in the family. Does that not at times become an almost unbearable burden?

Ms. Noyes. If it is done without any respite, without any breaks in care giving and without education or support from the community, it can be overbearing. There comes a point in some Alzheimer's disease people when institutionalization is an acceptable alternative.

The point is here that we jump from A to Z, and that also there are examples across the country of Alzheimer's patient who are not put in nursing homes, but who are adequately cared for and the family is preserved.

My job in Alzheimer's organization is to take care of the families as well as the patient. Families do not want to put their loved ones in institutions, especially when it is financially draining to them, and they are not happy with the care that they are receiving there. It is a bad alternative for them, but in a lot of places it is the only one that exists.

Senator **Metzenbaum**. Thank you.

Did you finish? I did not mean to cut you off.

Ms. **Noyes**. That is all right.

Senator **Metzenbaum**. I did not mean to do that.

Dr. Gurland, when, if at all, does the Alzheimer's disease patient comprehend that he or she has Alzheimer's?

Dr. **Gurland**. Well, one of the problems with understanding the feelings of Alzheimer's patients is that it requires someone who knows them very well and over a long and intimate period of time to really know what is going on inside them. They are not that fluent and articulate that the casual observer could ask them.

So if one talks to families, I think, of Alzheimer's patients, then I think they are aware, first of all, during the earlier portions of the illness and later on intermittently from time to time. There may be a dawning awareness which comes and goes with flashes of demoralization and depression.

Nevertheless, the real psychological trauma in Alzheimer's disorder is with the family. That is where the very high rates of depression and demoralization exists.

Senator **Metzenbaum**. I understand that. That is easy for me to comprehend. A friend of mine, a contemporary, a dentist has now closed his office down because he has Alzheimer's. He moves around the community very freely, acts totally as all other people in our community do, and I have just been a little bit sensitive as to what I could say to him or whether or not I could say anything to him, and I really am sort of picking your professional brains because it is an area that I do not find many people who have that much expertise.

Since you have that particular ability, I am trying to pick your brains as to when does the patient comprehend, if at all.

Dr. **Gurland**. I think a safe rule is that one listens to people without really trying to assume what they are feeling. Their reaction to the fact that they are losing their mental powers and their sense of control may not be expressed directly as a complaint about it. It may come out in some other way, in an attempt to regain control through some other behavior which is not necessarily normal for them.

Simply by listening one can be helpful and then also understanding that they are bound to be feeling control slipping away as their faculties diminish; one can then be sympathetic to their need to grasp your attention or to demand attention or to have things done for them in their efforts to regain a sense of control.

Senator **Metzenbaum**. Dr. Price, because members of the panel had indicated some specific interest, you saw fit to change the thrust of your remarks to this committee. So the Chair will give you a couple of minutes to summarize what you would have told us.

Dr. **Price**. No, that is all right. Really I came down thinking that I was going to talk a bit about what was wrong in the brain in Alzheimer's disease and what were, I think, suitable strategies for funding.

There are a couple of points that I might make.

Senator D'**Amato**. Suitable strategies for funding is a very appropriate area, and if you have any thoughts on that, I would like to hear it.

Dr. **Price**. Well, if you are asking, I will tell you. First of all, I think that we should be careful about putting too much money directly into Alzheimer's disease proper. I think that that would be a mistake. I think that we very much need funds for basic neuroscience. The advances in Alzheimer's disease, I feel, will come from taking the strategies and tools of basic neuroscience and applying them to diseases of the brain.

I think that I would not personally like to see funds diverted from basic neuroscience in terms of understanding how the brain normally works and just channeled into things that are Alzheimer's related. That is my own personal view.

I still think that the most rewarding funding mechanism is the grants that you were taking to task, that is, the individual investigator-initiated RO-1 grant. A bright young guy has a bright idea. Let him write a grant to try to get that funding. Many people do not get grants, and those ideas die, but I think that the best reward for the dollar still comes from the individual RO-1, with the program project grant and the center grant, of which Hopkins was a recipient, coming a bit later.

I would also like to emphasize the importance of bringing young investigators into the field, and in fact, if I were to make one closing comment, I would say the best possible prospect for Alzheimer's disease is the quality of the young investigators that are getting interested in the disease. I would say that, over the 20 years that I have looked at this disease, is the most promising sign.

This is no longer a disease in a sort of scientific backwater. This disease now has begun to attract, I think in part because you folks have made Federal commitments to this area. This field is attracting some of the best minds in science, and I think that if I were to say what is the most important thing to come out of the Alzheimer's publicity, it is this, that we are beginning to see some of the best young minds in the neurosciences committing themselves to thinking about human neurologic disease.

I think in the long run that is the thing that will be most rewarding for all of us.

Senator **Metzenbaum**. Dr. Price, do you have any feeling at all as to whether or not we may move at some point, whether earlier or later, in finding some real answers to the whole question of Alzheimer's with possibly some blockage mechanisms?

Dr. **Price**. Well, I think Alzheimer's is a much more complex disease than I thought it was a couple of years ago actually. It is a very complicated disease, but you just cannot imagine how much more we know about the brain than we knew 20 years ago.

When I was a medical student, the brain was there, and there were sort of anatomical regions. We now know what is connected to what, what transmitters communicate between which cells, what receptors are expressed on target cells. We have drugs and probes to explore those things. I cannot help but believe that that kind of information pursued at a molecular level is not going to provide important new insights not only into Alzheimer's disease, but Lou Gehrig's disease, which is the disease that I work on most intimately; Parkinson's disease, Huntington's disease, many of the so-called degenerative diseases of childhood, and a disease like mongolism. For example, there are many people with mongolism about. It is the most common cause of developmental abnormality of the brain. We do not know much about why people with mongolism do not think clearly.

Those kinds of issues can be directly pursued now, thanks to the strategies and tools that we have gotten from basic neuroscience, and I think that over the next 25 years, we will see an extraordinary expansion of our understanding of those kinds of disorders, thanks to basic neuroscience.

Senator **Metzenbaum**. How much help are you getting by reason of the new means of scanning, the CAT scanner and I guess there is another one called PET?

Dr. **Price**. Well, that is another area. The whole business of in vivo imaging the brain, for example, with a PET scan, if I were in a PET scanner and you gave me an injection of label glucose, and I am talking, the left side of my brain lights up right over the speech area. If you are listening, then a particular part of your brain lights up so that I could look at your scan and figure out what is Senator Metzenbaum thinking, not what is he thinking, but is he thinking.

Moreover, if I move my right hand, my hand area lights up. So we have now in front of us a whole new repertoire of techniques to examine the brains in living patients. It is a very exciting time, you know.

Senator **Metzenbaum**. We are getting in dangerous territory.

Senator D'Amato, do you have any further questions?

Senator **D'Amato**. No, but I would like to say, Dr. Price, I was extremely interested in your observation that maybe we should not, with such specificity, designate these moneys for the purposes of Alzheimer's per se, but rather be a little more generalized in terms of the research.

Dr. **Price**. The other point I might just make, I certainly do not disagree with the idea of accountability. I think every investigator has to be accountable for what he does, but we have to also have a certain amount of freedom for investigators to pursue original new ideas. We cannot cut that off.

Senator **D'Amato**. Let me just suggest that one of the concerns of this Senator is the grantsmanship in many areas, where it is not just the best program, but the best written grant proposal or the most prominent name in the field, get the research money. That is what this Senator and, I think, Senator Metzenbaum are concerned about.

Dr. **Price**. I understand that, but actually it did not come out in the discussions by some of the administrative people, but I have been chairman of a study section, and the grants basically come in, 100 grants, and over 4 days about 25 of us will go through in detail and review those grants and rank them according to what we think.

The study section turns over. It is not a bureaucracy in the sense that it is a fixed group of people judging the grants. There is turnover. So each time it is a fresh group of people.

I am off the study section now. My grants are going to be reviewed by new people. So I think the way it is designed it has less of a bureaucratic component to it, and I think that is very good because one sees new people come on study section to review grants, and that is as it should be. It should not be just a bunch of people sitting there making decisions on our scientific lives.

Senator **Metzenbaum**. Dr. Price, just a passing comment. I fully respect what you said about funds ought to be more available for neuroscience and neuromedical, and as one who has sponsored these amendments, I am frank to tell you they would not have flown.

I remember very well in this committee when I proposed the $3.5 million for Alzheimer's, and I remember someone raising the question and saying that the committee has such pressures that everybody wants some more for cancer, for heart, for diabetes, or whatever, and that we normally do not fund on that basis, and this committee has traditionally turned down the requests. I remember the chairman saying: "That is our policy, but in this instance the Senator from Ohio has enough proxies in his pocket that he is going to prevail."

Now, had I talked about neurosciences, I would not have had the proxy. I remember when I was a private citizen and I was a cochairman of the National Citizens Committee for the Conquest of Cancer, and I remember how we could get tremendous additions in heart and other fields, but these are equally important.

The fact is that we do live in a somewhat political, realistic world here. Members of Congress do understand Alzheimer's better than they understand neurosciences or medical.

So I understand what you are saying, but practically speaking, if we are going to get the money, I think——

Dr. **Price**. Oh, I am very grateful that Hopkins got a center, and I think that the investment in Alzheimer's disease is extremely important, but not to steal away from its substrate, which is basic neuroscience.

Senator **Metzenbaum**. We never steal away from one in this area to help another. We add on.

I want to thank all of the witnesses, and I would like to particularly thank Ms. Noyes for the work that you are doing and the day care treatment of Alzheimer's disease patients. I think it is somewhat of a breakthrough. I do not know that it is happening in every part of the country. I am sure that the work you do is at some times very frustrating and heart rendering, and I want you to know that we appreciate the fact that you are putting your time and your efforts into this particular effort. Thank you.

Ms. **Noyes**. Thank you.

[The prepared statement of Ms. Noyes and additional material supplied for the record follow:]

October 2,1984

Statement of Lin Noyes from Alzheimer's Disease and Related Disorders Association
Northern Virginia Chapter

Thankyou Senator Grassley for letting me speak today. My name is Lin Noyes. I am President of the Northern Virginia Chapter of the Alzheimer's Disease and Related Disorders Association. I am a nurse and have taken care of Alzheimer's* victims in hospital, nursing home, day care and home settings. I have coled a family support group for the last three years and have recently been appointed to the position of Director of THE FAMILY RESPITE CENTER,INC., the first day care center especially for people suffering from Alzheimer's type diseases in Virginia.

I am here today because for the last three years I have watched families "burn out" from caregiving in an attempt to keep their Alzheimer'svictim at home. I have also been actively involved in trying to find help in the community for these families and I have some knowledge based on these experiences, as to how the federal government can influence the care of Alzheimer's victims and their families.

Although we must wait for researchers to give us answers to the questions of why people get Alzheimer's and what can be done about it, we cannot wait to address the issues of caregiving. We must methodically plot out a course which will lead to longterm solutions for community care of Alzheimer's victims and not react with bandaid solutions that may be costly, ineffective and provide no real relief to families or community caregivers.

"Burn out" a term generally applied to the business world is an accurate description of what happens to family caregivers of Alzheimer's victims over time. The difference between employee burn out and caregiver burn out is that caregivers can't quit their jobs and gain relief. The stresses and strains of caregiving start before the family member is diagnosed and often lasts beyond the physical death of the Alzheimer's victim. The job of caregiving is totally consuming. Early in the disease family caregivers use their energy to try and accept their fate and make sense of an unreasonable disease. They may become angry and defensive. They may seek second, third and fourth opinions of the original diagnosis while ignoring the obvious changes in their loved ones condition.

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* Alzheimer's disease in this statement is meant to include all irreversible progressive dementias

As the Alzheimer's victim becomes less well and the progressive nature of the disease creeps in, the family focuses its energy on safety. Safety for the Alzheimer's victim as well as the family and their possessions. Almost daily , caregivers must choose between allowing their relative to perform at his highest level and yet not jepordize his safety or the safety of others. Eventually it becomes clear that their relative cannot stay alone and needs constant supervision. When this reality occurs, the caregiver in effect sacrifices his/her life for the wellbeing of the Alzheimer's victim. Besides constant supervision, a caregiver must assume increasing responsibility for the Alzheimer's victim's day to day activities, helping him dress, eat food, wash, groom, toilet and eventually doing all these things for him/her. It is similar to taking care of a todler except todlers eventually learn to do things for themselves, say thankyou and outgrow their need for constant care. Alzheimer's victims only get worse. The drain of energy for caregivers, physically, emotionally and mentally can certainly lead to burn out.

Families, however do not want to quit. While we, as observers, may only see the shell of a human being who demands monumental and constant care, the family sees their life long loved one suffering from a disease overwhich they have no control. Caregivers in general, only consider long term care institutions as a last resort - when they are at the end of their rope, have tied a knot and are hanging on. Although long term care should not be seen as a desperation move, family caregivers who want to care for their Alzheimer's relative in their home or in the community should be vigorously supported. Ninety per cent of the time home is the best place for the Alzheimer's victim and home is certainly the least expensive care setting for the family and for society.

To enhance the ability of the family to provide this type of long term care, periodic breaks in caregiving-- or respite-- are essential.

I want to tell you about our chapter 's successful attempt to provide respite to families who are caring for A.D. victims who are wanderers, incontinent or agitated: those whose behavior problems make them unacceptable in regular day care centers..

Two years ago members of our Thursday morning family support group identified this gap in existing services...although families could take care of these advanced-stage A.D. victims in their homes, no community services were available to help them and the idea of a nursing home was too expensive financially or emotionally for the family to consider.

This brainchild of our Thursday morning support group , a daycare program especially for advanced A.D. participants, was given a healthy shove into reality when the Knights of Columbus, Mt. Vernon council, donated $11,000 to help start the day care center.

We hired a consultant to write a plan and looked around the country for models of dementia day care. Our search led us to the Harbor Area Adult Day CareCenter in Costa Mesa,California, directed by Dan Sands,PhD.

Dan and his staff provide care for 40 moderately to severely demented people in this day care setting and have done so for the last four years.

Dan's center works for several reasons: 1) the participants are a homogeneous group-all have decreased mental abilities; 2) participants are expected to take part in the activities and are encouraged to use their remaining skills. One lady who had been kicked out of a nursing home because of her violence was given a trial of day care/board and care home. Dr. Sands questioned relatives and discovered that she had played the banjo beofre her illness. He put a banjo in her hands two years ago and to this day she plays in tune and in time for the sing-along group at the day care center. She can't tell you her name or where she is, but she can still pick a tune on the banjo.

We have also visited and learned about several other dementia day care centers. Burke Rehab in White Plains, N.Y.; and ADRDA sponsored facility in San Diego; and ShareCare in Cambridge,MA. which started out as a business venture and yet encompasses the same quality care concepts as the others and provides excellent services to it participants and their families.

Well, we had some money, we had the plan, and we had participants waiting, but we had no space to house our center.

Finally, after a year and a half we obtained permission to use an empty wing of a Catholic high school for one year to demonstrate to the community that we offered a viable alternative to nursing home care.

We have received many generous donations from the community for our center and have gained the attention of Frank Wolfe, our Congressman, since our Center has received no federal, state or local funding, but runs on fees for services and donations from the public to help those who otherwise could not afoord to pay. It has not been an easy endeavor. We have been nearly strangled several times by red tape, but our center finally opened last week.

We have among our participants, two who wonder from one hallway door to the other followed closely by a staff person to bring them back. We cannot lock the doors even at one end of the hall because of fire codes. Another lady, who is 93, partially deaf and incontinent spends her day trying to do crafts with her hands while her tongue protrudes and moves uncontrollably outside her mouth due to adverse effects of a behavior modifying drug she took 2 years ago. We have others, including a 53 year old recently retired general who watches T.V. paces the hall and waits for his wife to return. I mention him because his age eliminates him from other services which are geared for older demented people. Our day care center will work. When we have 14 participants a day who pay $22.80 we will financially breakeven. Before we reach that magic number, we will rely on the kind donations of others.

. We have estimated start-up costs of $10,000 and an operating budget over $100,000 a year.

Now a few suggestions for federal policies.

Day Care facilities like ours(and only 4% across the country are like ours) are necessary to keep A.D. victims in their homes, in the community, out of longterm care and high cost health care. Nursing homes cost an average of $60 a day. Day care can cost $22.80.

Help us find ways to support our endeavors to provide care within the community. Nöel Early, Director of ShareCare in Massachusetts states that he has turned away over 100 participants because there is no reimbursement mechanism from the government or private insurance policies and people in his area cannot afford the costs of dementia specific day care.

Help us cut through the red tape at the federal level. We are bound by rules and regulations of regular adult day care and some of these regulations reduce our ability to provide quality yet cost effective care.

Help us financially, not by providing huge sums of money to underwrite costs. We have shown that we can raise money to start, but obtaining the 501 c3 tax status allowing donors to deduct their donations from income tax can take 8 months to 2 years to obtain. This makes it rough on the fundrasing efforts.

Finally, recognize that A.D. victims need skilled care--not Medicare's definition of skilled care, but that these victims are entitled to receive care from knowledgeable, trained people. Training of caregivers should be a priority. It is also important to remember that the health care umbrella may not be the proper place for policies regarding care of A.D. victims. The health field carries a heavy price tag and may be the wrong arena to discuss the social and custodial needs of these victims and their families.

QUESTIONS FOR MRS. NOYES FROM SENATOR CHARLES E. GRASSLEY

(1) Do you know if your Association chapters have placed much emphasis on developing relationships with the community mental health centers or the area agencies on aging in their areas?

(a) If yes, have these been productive relationships?

(b) If no, do you think it makes sense to try to do this?

There has been no National (National ADRDA, that is) thrust to developing relationships with community mental health Centers. In our own Northern Virginia Chapter the Mental Health Center & also a Senior Center have allowed us meeting room space. The Area Agencies on Aging & ourselves have an ongoing knowledge & referral service for our respective services. It was only this summer when we learned that AAoA had received funds to support the A.D. caregivers. We sort of gained that information informally - no attempt was made by them to inform us of their plans. Looking back our National Organization (ADRDA) has advised us to work with local AAoA's.

a.) So far productivity of working with AoA has begun the seed of a support group in an underserved area in NoVA

We are going to have to work together. Planning is of the essence. Governmental agencies must respect the knowledge & experience that our organizations already have.

Help us implement our innovative plans & ideas to help these folks - don't reinvent the wheel!

Statement for the Federal Record on the Subject of

THE FUNDING OF ALZHEIMER'S DISEASE RESEARCH AND RESPITE CARE

Hearing for the Subcommittee on Aging

of the Senate Committee on Labor and Human Resources

Chairman, Senator Charles E. Grassley

Statement by

Antonio R. Damasio, M.D., Ph.D.
Professor of Neurology
Chief, Division of Behavioral Neurology
Director, Alzheimer's Disease Research Center
University of Iowa College of Medicine
Iowa City, Iowa

While the cause or causes of Alzheimer's disease remain a mystery, and while there is, as yet, no means to prevent or cure it, major progress has been achieved over the past decade and especially over the past three years, in the fight against this tragic disease. A good part of that progress is attributable to the increased level of awareness in relation to this disease, by both the administration and the public. Specifically, the development of the Task Force on Alzheimer's disease and the increased level of funding available through the National Institute for Neurological and Communicative Diseases and Stroke, the National Institute of Aging and the National Institute of Mental Health have, in a variety of ways, contributed to: (a) clarification of criteria for the diagnosis of the disease; (b) research into important neurochemical, neuropathological and neuroanatomical aspects of the disease; (c) dissemination of up-to-date scientific information to the public and to medical professionals, and (4) coordination of efforts to support patients and families struck by the disease. There is little doubt that the results achieved so far are not enough to solve the problem. Nonetheless, there is little question that major strides have been made and that all the steps taken are in the right direction. It is imperative that the effort continue if the problem is to be solved. It is unreasonable, at this time, to speculate on how long it will take for success to be finally achieved.

In our view, then, the continuation of a high level of funding, possibly an improvement on current levels of funding, and a continuation of a high state of alertness by both public and administration officials, are crucial to progress in the enterprise. From the point of view of research, it is necessary that the effort be comprehensive, and multidisciplinary, engaging multiple disciplines and approaches and aiming at different aspects of the problem -- diagnosis, anatomical and physiopathological foundation, including genetic and molecular aspects, palliative measures and support systems.

One of the most impostant aspects of research in Alzheimer's disease has to do with the analysis of brain tissue both from patients effected with the disease and from appropriate controls, (the latter are individuals of the same age and sex of those affected by the illness, who die from non-neurological causes and who are not affected by Alzheimer's disease). The availability of brain tissue for researchers concerned with Alzheimer's, is vital. It is important for spouses and other relatives of patients, as well as for the support groups that work with Alzheimer families, to realize the need for brain tissue and to take appropriate steps for such material to reach recognized research centers and thus be properly utilized.

Antonio R. Damasio, M.D., Ph.D.

LENNIE-MARIE P. TOLLIVER, PH.D.

COMMISSIONER ON AGING

ADMINISTRATION ON AGING

BEFORE THE

SUBCOMMITTEE ON AGING

COMMITTEE ON LABOR AND HUMAN RESOURCES

UNITED STATES SENATE

OCTOBER 2, 1984

Thank you for asking me to submit testimony for the hearings of the Senate Subcommittee on Aging on problems presented by Alzheimer's Disease. I welcome the opportunity to participate with you in exploring ways to alleviate the impact of this devastating illness on both patients and families.

The "cost" to society of Alzheimer's disease, one of the leading causes of death for older Americans, is very high. But the financial cost is in many ways secondary to the real toll which Alzheimer's exacts. This disease robs society of productive individuals with a wealth of accumulated wisdom and life experience. It also affects family members who give up their pursuits to look after their afflicted loved ones.

The response to the threat of Alzheimer's disease has been steadily gaining strength in the past several years. Federal funding has almost tripled since 1981 -- the President's budget request for FY 1985 was $38.6 million -- and the scientific effort includes research at the National Institutes of Health and the Alcohol, Drug Abuse and Mental Health Administration. A related goal is to educate the general public about the disease and the urgency of the quest for cause and cure that continues daily in laboratories across the country.

Alzheimer's disease has a devastating impact on family members as well as on the patient. Forced to observe a slow deterioration that many consider more painful than the sudden death of a loved one, families of Alzheimer's patients have -- rightly -- been called the hidden victims of the disease. The question of maintaining the patient in the familiar atmosphere of his or her home is only one of the agonizing, wrenching personal decisions that must be reached. Every day caregivers walk a tightrope between meeting the needs of the patient and preserving their own well-being.

Intensive efforts to educate the public about Alzheimer's disease and the toll it takes on families are beginning to pay off. The "hidden victims" are speaking out, and individual cases are being publicized to dramatize the toll of the disease. Articles and documentaries now tell the stories of Alzheimer's patients and the spouses and children who care for them. More and more Americans are getting the message that in one way or another, Alzheimer's may affect us all.

In recognition of the special attention that this disease deserves, Secretary Margaret Heckler established a Department of Health and Human Services Task Force on Alzheimer's Disease in 1983. The Task Force is chaired by the Honorable Edward N. Brandt, Jr., M.D., the DHHS Assistant Secretary for Health; its membership consists of 10 agency and program heads from across DHHS, along with representation from the Veterans Administration. I am a member of that Task Force.

The Secretary's charge to us was four-fold: "coordinating the intensive on-going research already being done at HHS on Alzheimer's disease; creating a mechanism for sharing information by all programs in the Department serving the elderly; identifying the most promising research avenues to explore; and providing the vehicle for translating that research into policy, programs, and practical means for improving the quality of life for older Americans."

The Task Force report has been completed and was released by Secretary Heckler in September. The recommendations represent the best judgment of leading authorities on Alzheimer's disease from both inside and outside Government, including agency directors, scientists, educators, and clinicians. The Alzheimer's Disease and Related Disorders Association(ADRDA), a national association of Alzheimer's disease victims and their families with chapters across the United States, provided significant input throughout the deliberations of the Task Force.

In releasing the report, Secretary Heckler drew special attention to recommendations affecting the families of Alzheimer's victims. At that time, she also announced other new steps in the Alzheimer's field:

o A special conference for families of Alzheimer's patients will be held in Washington next spring. It will present information on research as well as care and treatment. HHS will seek also information on experiences and needs of families at the conference.

- A new HHS initiative on respite care is being launched. Respite care involves services that provide relief for individuals or families who provide care at home for the chronically impaired. Under the initiative, current respite care studies and demonstration projects in HHS will be more closely coordinated, and further projects will be funded studying respite care alternatives. HHS will also work with private, volunteer and community respite care providers.

- Two new pamphlets will be available, one for families to help them cope with the needs of an Alzheimer's victim, and the other to inform practitioners of new research and treatment information.

Let me now turn to some specific activities which the Administration on Aging is undertaking on problems presented by Alzheimer's Disease. During the past year, in response to the nationwide concern about its serious effect on families of older persons who have this disease, AoA launched a special effort to alleviate some of the problems associated with it.

In view of the significant proportion of older persons who suffer from Alzheimer's Diesase and the burden it places upon family caregivers, we believed it important that the aging network become more knowledgeable about the disease condition and its effect on the delivery of services to the elderly. From a number of studies of Alzheimer's Disease and a variety of demonstration and pilot projects, it is evident that many older persons with the disease can be successfully cared for at home when the caregivers are given support and can access certain needed services. Through the joint effort of the AoA Regional Offices, the AoA-funded Long Term Care Gerontology Centers and the Aging Network, we felt that much could be accomplished in relieving the stress of providing care and improving the quality of life for older persons with Alzheimer's Disease. Through a more informed public awareness about the nature of the disease and the kinds of treatment and support needed, institutionalization of a number of older persons can be averted or delayed for a considerable length of time. An increase in the number and effectiveness of support systems available to families of persons with Alzheimer's Disease would make a major contribution to this goal.

We anticipated that linkage of the Area Agencies on Aging with Alzheimer's family support groups would heighten the Area Agencies awareness and understanding of the disease and its implications for service delivery systems. Additional benefits to families of older persons with Alzheimer's Disease would include:

- o Increased access to available community-based services such as adult day care, respite care, and socialization activities; and
- o Increased access to counseling and assistance to patients and their families in coping with the disease and in the determination of appropriate institutional placement when and if it becomes necessary.

State and Area Agencies on Aging were, therefore, urged to take leadership in stimulating the growth and development of support groups to help families cope with problems associated with the disease. The AoA Regional Offices were directed to formulate regional plans for the activity. Their plans, developed with State Agencies on Aging and the Long Term Care Gerontology Centers, included training workshop sessions by the Centers in each of our ten regions. State Agencies were encouraged to recruit Area Agencies to participate in this effort and to provide technical assistance to Area Agencies. Area Agencies were given direct responsibility for the development of or assistance to local support groups.

I am pleased by the specific activities of the first year of AoA's Alzheimer's initiative:

- o Forty-one (41) States have made a commitment to undertake significant State activity to support this effort. These States are in various stages of the planning process. Some States have formed steering committees, some States are collecting information about existing family support groups as a basis for planning future efforts, and several States are beginning to plan for training programs for State and Area Agency staff and service providers.

- The 10 AoA Regional Offices have completed meetings with State Agencies on Aging to explore the voluntary participation of States in the Alzheimer's Disease Family Support Group Initiative.

- Several Regions are planning additional, more intensive training sessions for State and Area Agency staff and other personnel, including community Health Center and Community Mental Health Center personnel. The Regional Offices, the Long Term Care Gerontology Centers and ADRDA are collaborating in these conferences. Already over 5,000 people have been trained.

- Several States have taken specific action:

  - In Massachusetts, the State Legislature passed legislation to form an Alzheimer's Disease Commission to develop a report and recommendations about how to provide adequate care and support for persons with

Alzheimer's Disease. The State is also planning for the development of 3 pilot projects on day care.

- Virginia's State Office on Aging awarded $12,000 for seven 1-day workshops on how Area Agencies can work with caregiver groups, physicians and human service providers. Over two hundred persons attended these sessions.

- In late September, the Tennessee Commission on Aging, in conjunction with ADRDA, held a Statewide workshop on the formation of support groups throughout the State.

- The North Carolina Division of Aging has strongly supported efforts to establish support groups. It has been working with Duke University on a Radio Showcase series of 5 minute radio presentations aired weeklong on 75 stations in the State. These presentations about the symptoms of Alzheimer's Disease, type of care needed, and where to get assistance in caring for older persons with the disease will be repeated throughout the year.

- In London, Kentucky, the Area Agency and the Alzheimer's Disease support group have been instrumental in establishing a comprehensive care clinic to assist families of older persons with Alzheimer's Disease.

In addition to activities in support of the aging network, the Long-Term Care Gerontology Centers which are receiving Older Americans Act title IV funds have engaged in activities which have a bearing on various aspects of Alzheimer's Disease. For example:

o The Center at the University of South Florida has developed a specilized clinic for those who have the disease, has established a statewide network of Alzheimer's Family Support Groups, and has developed a technical assistance manual for others who are interested in developing such groups. It has been a pioneer in developing alternative approaches for providing community-based services for older persons. The model which this Center designed for the development of support groups for families of older persons with Alzheimer's Disease has served as a basis for AoA's special initiative on developing family support groups.

o The Center at the Medical College of Wisconsin has developed an Alzheimer's Disease Clinic focusing on ambulatory services for veterans with this disorder in collaboration with the local Veterans Administration Medical Center.

o The University of Arizona Center is conducting a study of Alzheimer's Disease patients and their family caregivers, which is designed to lead to productive ways to help victims and their families cope with the effects of the disease.

- The Temple University Center has stimulated regional research initiatives in this area through its small grants program; and has presented a series of symposia on the subject.

The combined efforts of the Administration on Aging, the Long Term Care Gerontology Centers, and State and Area Agencies on Aging, have accomplished much to alleviate some of the stress imposed on caregivers and to improve the quality of life of older persons with Alzheimer's Disease. State and Area Agencies are now actively involved in launching statewide efforts to assist the formation of new family support groups and to provide whatever help may be necessary for existing groups. To help them promote the development of these support groups, the Administration on Aging has assembled a set of technical assistance manuals which provide comprehensive information about the disease itself along with suggestions on working in the community.

Recently the Administration on Aging made new grants to improve services to Alzheimer's Disease patients and their families. These funds will be used to develop model training programs for highly skilled volunteers and to study the impact of specialized day care centers on patients and family caregivers. They will support caregivers, maintain family equilibium and address specific disorders, such as burn out and exhaustion that result from the strain of caring for an elderly relative with Alzheimer's Disease.

I am confident that the mystery of Alzheimer's Disease will be unravelled. The day will come--and soon--when we no longer need to know how to "manage" the disorder. If we can turn the tragedy of Alzheimer's disease into greater overall knowledge and understanding, then we will be recreating on a broad scale the personal triumphs of those who have successfully translated their private Alzheimer's heartache into a message of endurance and hope for countless other families.

The Jewish Home and Hospital for Aged
120 West 106 Street
New York, N.Y. 10025
(212) 870-5000

September 28, 1984

Honorable Charles Grassley
Committee on Labor & Human Resources
Room 428 DSOB
Washington, D.C. 20510

Dear Senator Grassley:

I am pleased to receive your invitation to submit this statement for the hearing of the Subcommittee on Aging to be held October 2, 1984.

I have been the Director of Psychiatry since 1960 of The Jewish Home and Hospital for Aged at its Manhattan branch -- a 514-bed skilled nursing facility. In my 25 years in geriatric psychiatry, I have closely followed the clinical, family, research and economic aspects of Alzheimer's disease.

In 1960, medicine believed that dementia -- the progressive loss of memory, orientation, judgement and abstract thinking -- was due simply to aging. Labeling it "senility" discouraged research because its apparent cause -- aging -- seemed both obvious and overwhelming. However, it was freed from this bias by the observation[1] that brains of patients with "senile dementia" in no way differ from those of persons much younger who died of Alzheimer's disease (then called a presenile dementia). By learning that the remaining life span of "senile dementia" patients was cut in half,[2] medicine recognized it was faced by a disease, not aging per se and much research began.

By 1977, enough research was in process for the newly-formed National Institute on Aging to convene the first of its conferences on Alzheimer's disease and related disorders. By then epidemiologists were warning that Alzheimer's disease was already widespread and that given the dramatic trend toward lengthening life it would soon create a public health problem of major importance.

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[1] Terry, R.D., "Aging, Senile Dementia & Alzheimer's Disease," in Alzheimer's Disease: Senile Dementia & Related Disorders, ed. Katzman, R., Terry, R., and Bick, K. Raven Press, N.Y. 1978.

[2] Peck, A., Wolloch, L. and Rodstein, M., "Mortality of the Aged with Chronic Brain Syndrome." Ibid.

Congress and private sources then began to increase funding for research in Alzheimer's disease. While support for better medical, nursing, psychological and social work care for the victims of the disease must not be withheld, the most crucial need is for progress in understanding the essential nature of Alzheimer's disease: precisely what occurs in the brain, in what sequence, and in which parts of the brain, as the disease runs its course. Without this knowledge, the search for new treatments remains random and uncoordinated, dependent upon chance for its outcome -- and to date wholly unsuccessful.

Two recently reported research findings illustrate the value of emphasizing such research in Alzheimer's disease. (These are indeed recent, the first reported in "Science" and also in The New York Times on August 24, 1984, the second in "Science" and in The New York Times on September 7, 1984)

Dr. Marotta's team at Harvard & McLean Hospital, Boston, learned that brain tissue frozen at autopsy reacted chemically months later. What had heretofore been considered "dead" tissue was demonstrated to contain proteins which interacted and underwent measurable changes. This new technique is a seminal advance in brain research. It will undoubtedly be used by other researchers not only for Alzheimer's disease but the study of other brain disorders.

Dr. Marotta's research required brain specimen in which the diagnosis of Alzheimer's disease could be corroborated. This was accomplished through ante mortem clinical psychiatric examinations performed at The Jewish Home and Hospital for Aged over several years and, once death occurred, by neuropathological examination of those same individuals, at the Albert Einstein College of Medicine, after autopsy was performed with family consent.

The immediate result of Dr. Marotta's work is the discovery that Alzheimer's brains are deficient in an enzyme normally present, an enzyme regulating the synthesis and breakdown of the most important proteins in nerve cells. This is the first specific information on how nerve cells are destroyed in Alzheimer's disease. Using frozen brain tissue, much more will soon be learned about the actual chemical changes within nerve cells both in Alzheimer's disease and in health.

Dr. Damasio's team at The University of Iowa found that brains of Alzheimer's patients showed loss of nerve cells in 2 very small but highly strategic portions of a part of the brain called the hippocampus, long known to be a major (or even the main) center for memory. The 2 areas he found to be severely damaged together control access to and outgrow from this memory center. Medicine has long recognized that progressive loss of memory is the central impairment in Alzheimer's disease, leading to all of the rest of the clinical findings. Dr. Damasio's work establishes precisely why this occurs by pinpointing the location of the disease.

Together these key discoveries put us at the threshold of knowledge of how and where Alzheimer's disease strikes. Many questions remain: why are the cells in certain small areas of the brain vulnerable -- yet not those right next to them? Why are some persons susceptible, not others? What begins the disease process -- a virus? Another extrinsic cause? A genetic "error?"

While we now have the technical capability needed to acquire the remaining knowledge needed to prevent and to cure Alzheimer's disease, progress will be blocked unless attention is drawn to the other vital element in this research: the availability of brains for study. As I pointed out in my September 12, 1984 letter to The New York Times, the Harvard team had to send to New York for brain tissue and used 10 specimens. The Iowa team had only 5 brains to study. Since a minimum of 100,00 Americans die of Alzheimer's disease each year, this is far from a rare disease. Why, then, are key researchers limited to a tiny number of brains?

Such specimens become available only through one source -- autopsy. During life, removal of brain tissue entails surgery which is traumatic, costly and risky. It is not a feasible source of research specimens. Despite growing public awareness of Alzheimer's disease and public demand to find an effective treatment, permissions for autopsy have been declining. In part, this is a reflection of a general decline in permitting autopsy, nationwide and in all age groups. But there is an even sharper decline in the number of autopsy permissions for the very old. Even when an aged relative has died of Alzheimer's disease, family members usually refuse autopsy.

We must begin to address this problem now. Those with experience in caring for the aged, in both intramural and extramural settings, need to be brought together to share their failures and successes in obtaining autopsy permission. Since attitudes toward autopsy are complex, involving religious, family, social and psychological factors, professionals from many disciplines need to be involved. Administrators and lawyers, too, must be included. The Alzheimer's Disease Foundation and similar groups can be invaluable in providing information about "the other side" -- what the responsible relative feels when an autopsy is requested and what determines their decision.

Once we learn why so many families refuse to permit autopsy of aged relatives, we can plan to change our approach to them. Should the physician, traditionally the one who discusses autopsy with the family, continue to do so? If so, can physicians be helped to change their approach? Should others caring for the aged, nurses, social workers, nursing home Administrators, speak to families about autopsy? Should they be given up-to-date information on how invaluable autopsy study is in brain research? Should they be provided with well written examples of progress in Alzheimer's disease research using brain tissue? Should this topic be brought up well before the patient dies, rather than when the family is trying to cope with bereavement? Can this be done by meeting with groups of relatives of aged patients in nursing homes? In the community, with the help of the National Alzheimer's Disease Foundation?

Whatever the respective merits of the varied actions just suggested, it is clear that many efforts are possible -- and that there is an urgent need to implement them promptly. Leadership, coordination and direction of such a program should be centralized and supported by adequate staffing. The cost of such a program is insignificant as contrasted to the staggering costs -- both human and financial -- of further delay in the conquest of Alzheimer's disease.

Respectfully submitted,

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Autopsy Refusals Imperil Alzheimer Study

To the Editor:

The Times has reported two major discoveries in Alzheimer's disease within the past three weeks.

It should be noted that the research was performed on small numbers of brains of aged patients — 10 in Dr. Marotta's work at Harvard Medical School [news story Aug. 24] and five in Dr. Damasio's work at the University of Iowa [news story Sept. 7]. Dr. Marotta's team had to send for frozen brains from the Albert Einstein School of Medicine in New York.

It is ironic, and potentially disastrous, that now that Federal funding of research into Alzheimer's disease is making major advances possible, the number of autopsy permissions being granted for aged patients is rapidly declining. Every family with an Alzheimer's patient learns there is — as yet — no effective treatment. Yet when that patient dies, personal repugnance toward an autopsy leads to a refusal to permit one.

At the moment of bereavement, this is understandable. Yet unless brain tissue of the aged — both those who had Alzheimer's disease and those who did not — is available to research teams, no amount of funding will produce the information crucial to preventing and curing this horrible disease.

The key to success is in the hands of those who best know its tragic story — the close relatives of its victims. If they appreciate that brain tissue is indispensable to research and grant autopsy permissions, progress toward a cure will continue. If they avoid their responsibility to research, they delay it.

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New York, Sept. 12, 1984

Senator **Metzenbaum**. And thanks to all of you.

[Whereupon, at 11:45 a.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

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